COMPUTERWORLD®

Enterprise Innovation From Core to Edge | OCTOBER 21, 2013

Innovation *VS.* MAINTENANCE

Spending too much on keep-the-lights-on projects? **Here's how to tip the balance.**

Also inside: Can Microsoft Make a Comeback After Ballmer? **44** | Twitter Faces A Tough IPO Process **8**

HP ProLiant Gen8 servers
How UPS does more with less energy.
See page C2

HP helps UPS save energy before a truck even leaves the warehouse.

It's time to build a better enterprise. Together. UPS does more with less thanks to HP. Soon HP ProLiant Gen8 servers—the world's most intelligent servers—will deliver more than twice the performance using 40% less energy. Multiply that by more than a thousand UPS locations and they'll save over 3 million kilowatt hours of energy every year. That will provide the same benefit to the environment as over 60,000 trees. Getting more efficient at every turn, it matters. hp.com/ups

Make it matter.

BRING THIS AD TO LIFE
WITH THE FREE AURASMA APP

1. Download the free Aurasma app
2. Point your device at this ad

Performance and energy savings claims based on HP and UPS internal research. Trees estimate [illegible] US EPA calculator conversion of electricity [illegible] www.epa.gov. UPS, the UPS brandmark and the color brown are registered trademarks of United Parcel Service of America, Inc. All rights reserved. [illegible] Hewlett-Packard [illegible]

COMPUTERWORLD

P.O. Box 9171
492 Old Connecticut Path
Framingham, MA 01701-9171
(508) 879 0700
Computerworld.com

» EDITORIAL

Editor in Chief
Scot Finnie

Executive Editors
Ellen Fanning (features and design),
Julia King (events)

Managing Editors
Johanna Ambrosio (technologies),
Sharon Machlis (online),
Ken Mingis (news),
Bob Rawson (production)

Assistant Managing Editor
Valerie Potter (features)

Director of Blogs
Joyce Carpenter

Art Director
April Montgomery

Senior Reviews Editor
Barbara Krasnoff

Features Editor
Tracy Mayor

News Editors
Mike Bucken, Marian Prokop

National Correspondents
Julia King, Robert L. Mitchell

Reporters
Sharon Gaudin, Matt Hamblen,
Gregg Keizer, Lucas Mearian,
Patrick Thibodeau,
Jaikumar Vijayan

Editorial Project Manager
Mari Keefe

Associate Online Editor
Rebecca Linke

Office Manager
Linda Gorgone

Contributing Editors
Jamie Eckle, Preston Gralla,
JR Raphael

» CONTACTS

Phone numbers, email addresses and reporters' beats are available online at *computerworld.com* (see Contacts link at the bottom of the home page).

Letters to the Editor
Send to letters@computerworld.com. Include an address and phone number for immediate verification. Letters will be edited for brevity and clarity.

News tips
news_tips@computerworld.com

Subscriptions and back issues
(888) 559 7327, cw@omeda.com

Reprints/permissions
The YGS Group, (800) 290 5460, ext. 100, computerworld@theygsgroup.com

THIS ISSUE | 10.21.2013 [VOL. 47, NO. 18 $5/COPY]

COVER STORY

Innovation vs. Maintenance

16 Many IT leaders admit their spending is too heavily weighted toward keep-the-lights-on projects. Here's how to tip the balance.

IT Gets Its Green On

26 IT can drive green projects by identifying opportunities for operational efficiency – and helping to build the business case.

Keep New Hires From Jumping Ship

30 IT-specific onboarding programs help savvy companies bring new hires into the fold and keep them there.

HEADS UP

2 The **2020 Olympics** may showcase IT. | SAP aims to thwart **NSA spies.** | **4** Ballmer touts Microsoft's **"devices and services"** strategy. | IBM leads **cognitive computing** research.

NEWS ANALYSIS

6 CEO Meg Whitman ties **HP's woes** to Microsoft's hardware push. | **8** Microblogging will go under the microscope when **Twitter promotes its IPO.**

OPINIONS

15 Thornton May is sure that the CIO job isn't on the brink of extinction. | **38 Preston Gralla** thinks Ford's Alan Mulally would be the wrong choice for Microsoft. | **44 Scot Finnie** also ponders Microsoft's future.

DEPARTMENTS

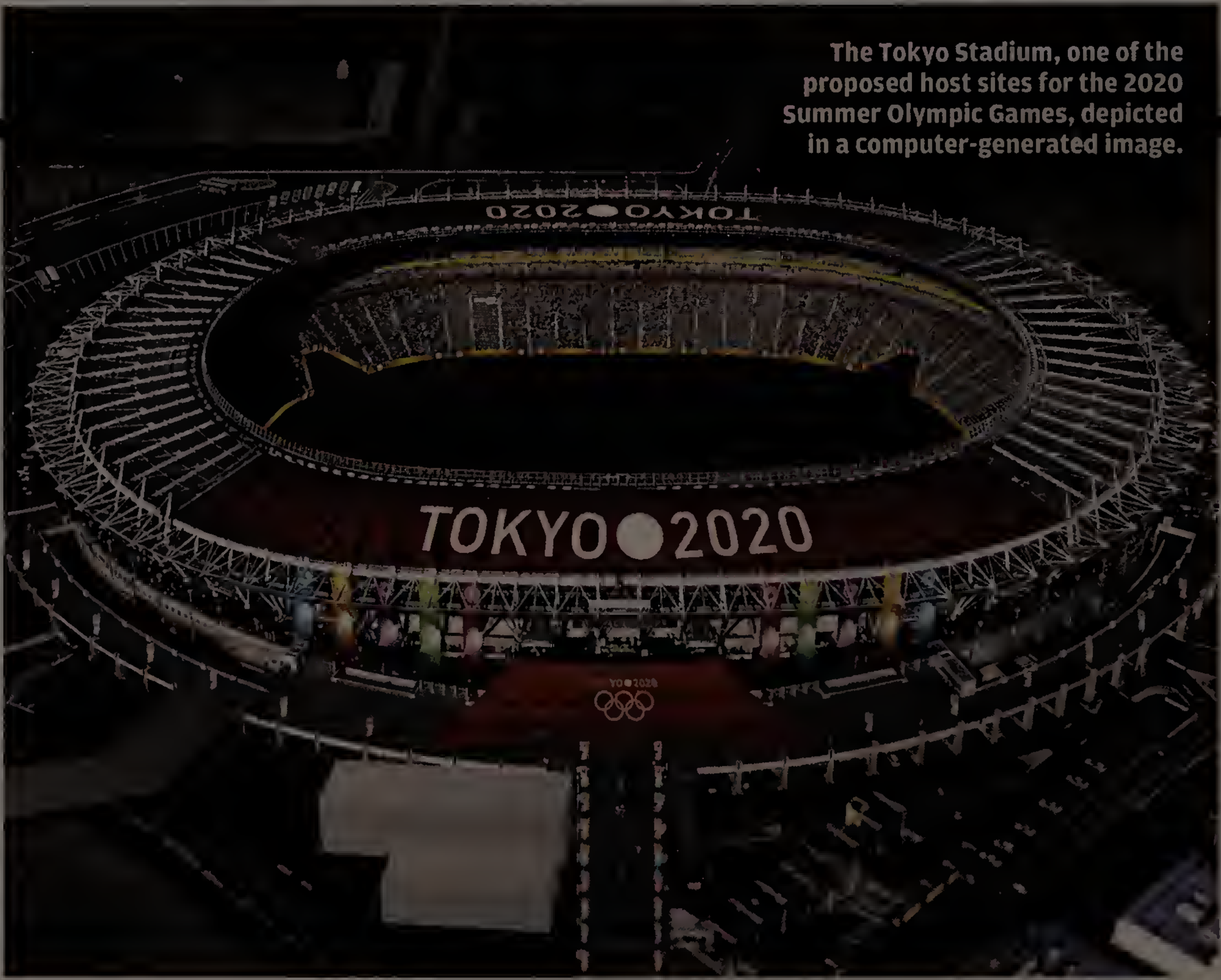
10 The Grill: The VA's Dat Tran | **36 Security Manager's Journal:** The ins and outs of extending DLP | **39 Career Watch** | **42 Shark Tank**

FOR BREAKING NEWS, VISIT COMPUTERWORLD.COM

THINKSTOCK

Fresh
Insights
New
Trends
Great
Ideas

HeadsUp


The Tokyo Stadium, one of the proposed host sites for the 2020 Summer Olympic Games, depicted in a computer-generated image.

REUTERS / TOKYO 2020 BID COMMITTEE

EMERGING TECHNOLOGIES

Japan Olympics Could Transform Tech

LAST MONTH'S AWARDING of the 2020 Olympic Games to Tokyo could be great news for technology.

Pushed by a desire to showcase their expertise to the world, some of Japan's biggest companies are targeting 2020 as the ideal time to deploy new technologies that could revolutionize mobile telecommunications, consumer electronics, automobiles and even the way people watch the Olympics on TV.

Consider what happened last time Japan hosted the Olympics, in 1964. Back then, technology wasn't nearly as pervasive as it is today, but those games were notable as the first to be broadcast overseas via satellite and in color.

Television might get another Olympic push forward in 2020. While TV makers are currently promoting "4K" or "Ultra HD" sets, which offer four times the level of detail of current HDTVs, Japan's national public broadcaster, NHK, is close to beginning trial service of a system with 16 times the level of detail, called "Super Hi-Vision" or "8K." Test transmissions are due to begin in 2016.

For its part, NTT DoCoMo, Japan's biggest mobile telecommunications network operator, is targeting 2020 for the introduction of a 5G cellular phone service. Designed to work in outdoor, urban areas like Tokyo, the system will boast data rates of between 1Gbps and 10Gbps.

And in the automotive market, Nissan is working on self-driving technology for cars. The vehicles are already on test tracks and were demonstrated at a recent conference. Production versions could be on the road by 2020.

– Martyn Williams, IDG News Service

DATA PRIVACY

SAP Addresses User Fears of NSA in Australia

SAP may build a second data center in Australia to meet customer demand for locally delivered cloud services in the wake of revelations about the National Security Agency's Prism surveillance program.

"When I talk to the public sector, it's clear they will only consume cloud if we can guarantee their data stays here in Australia. And we are ready for that," SAP co-CEO Jim Hagemann Snabe said in a recent story in the *Australian Financial Review.*

Former NSA contractor Edward Snowden's leaks about the agency's spying programs have changed the game for tech vendors, Snabe told the *AFR.*

"What we see today is that the first question asked in Europe and Asia is, 'Where is your data center?' and the second is, 'Can you guarantee that the data stays in that physical location?'" Snabe added.

Any notion that the vendor is cashing in on the NSA controversy is "overstated," said SAP spokesman James Dever.

"We're building out a network of global data centers; that's ... in our plans," Dever said, noting that "many companies" have said for years that they prefer "a local or regional option for [housing] their data."

"The global network gives us an advantage, NSA or no NSA," he said.

– CHRIS KANARACUS, IDG NEWS SERVICE

COMPUTERWORLD.COM

How InterSystems invented a database system for developers who question relational databases.

TheSecretIsGlobals.com

INTERSYSTEMS®

© 2013 InterSystems Corporation, Cambridge, MA. All rights reserved. InterSystems is a registered trademark of InterSystems Corporation. 3-25-13 Globals4CoWo

BETWEEN THE LINES

By John Klossner

THESE WEREN'T THE HIGH-TECH OLYMPICS I HAD IN MIND.
80
157
76
23

IT INDUSTRY

Ballmer Touts 'Value' In Final Letter

IN HIS LAST LETTER to shareholders before retiring, Microsoft CEO Steve Ballmer hammered on themes he and other executives emphasized when they met with Wall Street analysts three weeks earlier.

Among the strategies Ballmer outlined in his shareholder letter were Microsoft's ongoing transformation to a "devices-and-services" company — a massive turn from its history as a purveyor of packaged software — and its continued reliance on enterprise sales to generate revenue.

Ballmer spelled out the company's mission statement. "We declared that Microsoft's focus going forward will be to create a family of devices and services for individuals and businesses that empower people around the globe at home, at work and on the go, for the activities they value most," he wrote.

Microsoft has used that phrasing before, as has Ballmer, including in a July letter to employees and on Sept. 19 when the company hosted a half-day event for Wall Street analysts.

The company has said that it plans to stick with the strategy swivel no matter who is appointed Ballmer's successor, a stance that was likely cemented when Microsoft announced it would acquire parts of Finnish phone maker Nokia for $7.2 billion. The Nokia acquisition "will accelerate our growth with Windows Phone while strengthening our overall device ecosystem and our opportunity," Ballmer promised shareholders.

But when it comes to consumers, Ballmer tacitly admitted last month, Microsoft faces an iffier sales pitch. "Consumer services, as we say, are tough," he said.

Ballmer faced another tough crowd when the Microsoft board of directors reduced his bonus for the 2013 fiscal year, citing the poor performance of Windows 8 and the $900 million Surface RT write-off. The bonus of $550,000 amounted to 79% of Ballmer's target; last year, he was given a bonus that amounted to 91% of his target.

– Gregg Keizer

Micro Burst

U.S. revenue from mobile ads and search hit

$3 billion

in the first half of 2013, up 145% from last year.

TECH RESEARCH

Colleges, IBM to Study Cognitive Computing

IBM and four universities are planning to study cognitive computing in a research project whose goal is to develop computers that operate in a manner that's similar to the way the human mind works.

The researchers hope to create systems that outperform Watson, the IBM supercomputer that, among other things, famously competed on the TV game show *Jeopardy!*

The company said its partners will be Carnegie Mellon University, MIT, New York University and Rensselaer Polytechnic Institute.

The project will involve the study of big data, to find new ways to use computers to process large volumes of structured and unstructured data.

Topics to be explored include how applications can boost group decision-making, how processing power and algorithms apply to artificial intelligence, how systems should be designed for more natural interaction and how deep learning impacts automated pattern recognition.

Another IBM project seeks to imitate how neurons receive sensory input and connect with each other. That effort is called Synapse, for Systems of Neuromorphic Adaptive Plastic Scalable Electronics.

– JEREMY KIRK, IDG NEWS SERVICE

IT'S YOUR DAY. CREATE SOMETHING POWERFUL.

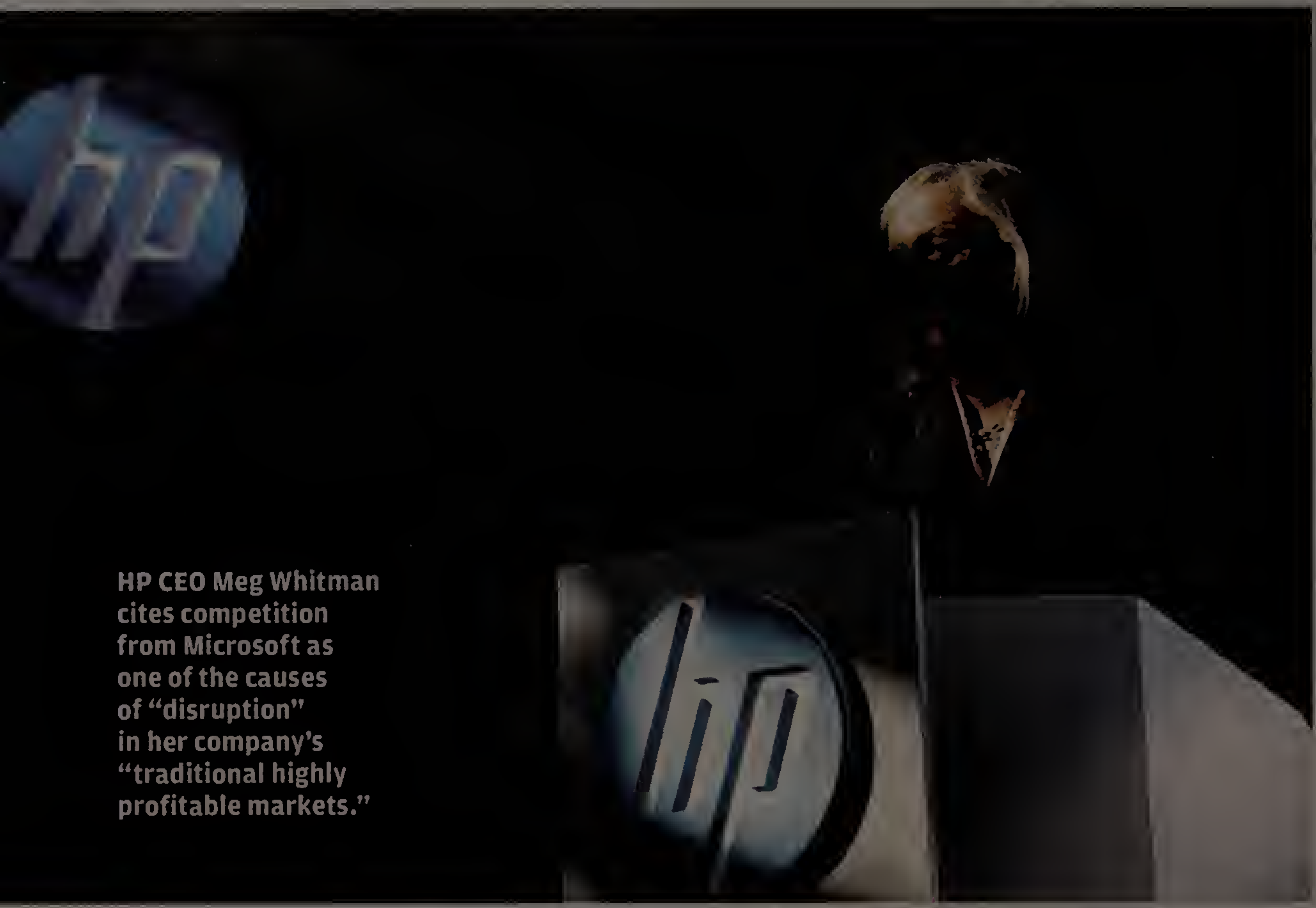
Where could you take your business if you had fewer daily distractions? It's time to find out. With CenturyLink as your trusted technology partner, you get access to a global broadband network, custom communications solutions and a visionary cloud infrastructure with data centers around the world – freeing you to innovate and grow your business into something even more successful.

centurylink.com/link

Data · Voice · Cloud · Managed Services

CenturyLink® Business

Your link to what's next™



HP CEO Meg Whitman cites competition from Microsoft as one of the causes of "disruption" in her company's "traditional highly profitable markets."

REUTERS / STEPHEN LAM

CEO Ties HP's Woes to Microsoft

Whitman acknowledges reality and joins fellow PC makers in criticizing Microsoft's move into the hardware business.

By Gregg Keizer

HEWLETT-PACKARD has joined the ranks of PC makers that say Microsoft's move into hardware sales is exacerbating their business woes.

"HP's traditional highly profitable markets face significant disruption," HP CEO Meg Whitman told Wall Street analysts at the start of a daylong presentation earlier this month. "We are seeing profound changes in the competitive landscape. Current longtime partners, like Intel and Microsoft, are increasingly becoming outright competitors."

With that, struggling HP becomes the largest Microsoft partner to publicly find fault with the software developer's decision to compete directly with its OEM partners by selling hardware of its own design.

Smaller OEMs — with Acer being particularly vocal — have been expressing displeasure or concern about Microsoft entering their market for a while. Dell and Lenovo have also publicly opposed Microsoft's move.

> Current longtime partners, like Intel and Microsoft, are increasingly **becoming competitors.**

When Microsoft introduced its Surface tablets, it initially targeted consumers, but quickly moved on to the enterprise market and started signing up authorized distributors and resellers.

The company's tablets — the Surface RT, launched a year ago, and the Surface Pro, introduced in February — haven't broken any sales records, but the company remains bullish. It's set to start selling second-generation models this week.

Microsoft has been expanding its efforts to push the Surface tablet into the enterprise, its historic stronghold, especially with the advent of the Surface Pro 2, which is designed to function as a handheld, a touch device or, with the addition of a cover keyboard, an ultralight notebook.

And Microsoft's hardware plans extend beyond updates to its Surface tablets. The company last month agreed to pay $7.2 billion to acquire Finnish phone maker Nokia in a move that will drive Microsoft's own smartphone sales and perhaps lead to an expansion of its tablet portfolio.

"HP could have stomached the consumer piece [of Microsoft's strategy]," said Patrick Moorhead, principal analyst at Moor Insights & Strategy. "But the commercial piece took them to the point where they had to say something."

Microsoft officials declined to comment on Whitman's remarks.

Moorhead said he doesn't think Whitman was "scapegoating" Microsoft. "For HP, this hasn't been discussed as an additional challenge," he said. "But if she hadn't brought it up [with the Wall Street analysts] and did later, then it would have looked like scapegoating."

Indeed, other HP executives told the analysts that the company is competing in a changed market, one where Microsoft Windows and Intel processors are no longer the only choices. "We're in a new world now with multiple operating systems, new architectures, new silicon, new graphics, new subsystems," said Dion Weisler, an HP executive vice president and head of the company's personal computer division.

He said HP has a new four-OS strategy that comprises Windows, Android, Chrome OS and Ubuntu Linux.

HP has taken steps to pursue that strategy in recent months, introducing a handful of devices powered by alternate operating systems — including Android-based tablets and a Chrome OS-powered laptop developed jointly with Google.

But the bulk of HP's personal computers remain tied to Windows.

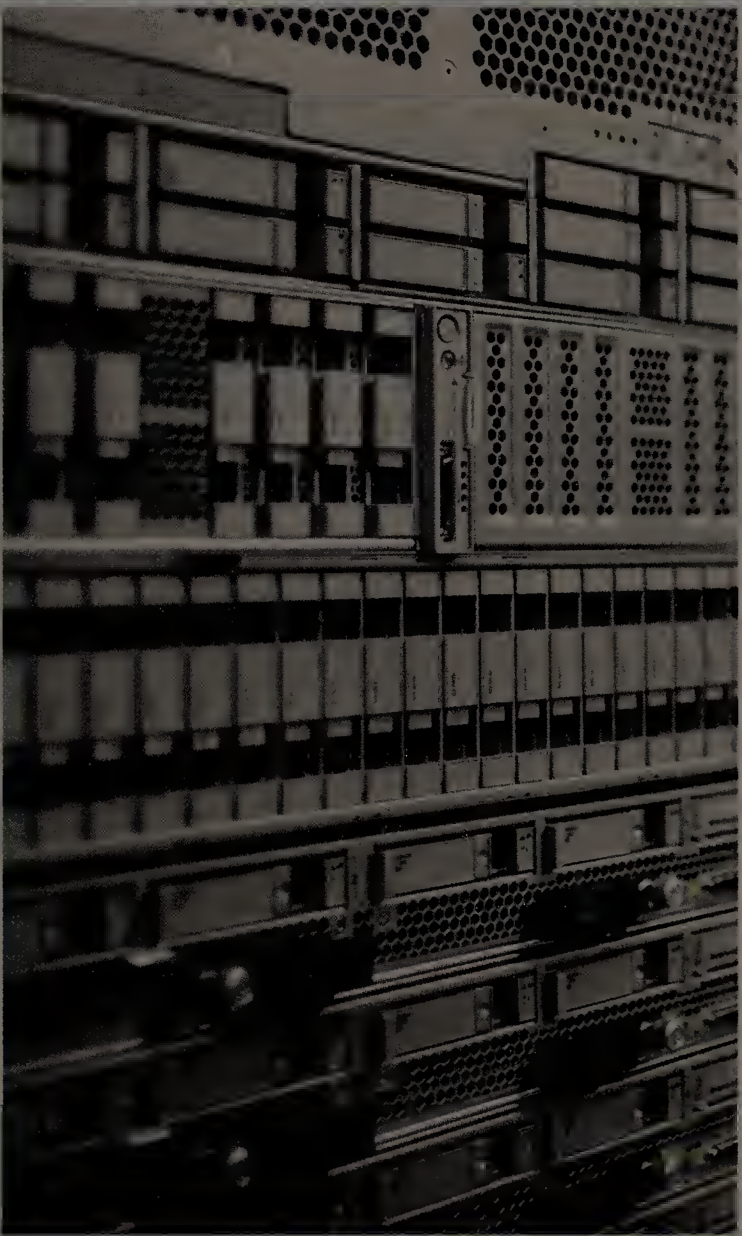
"This was all more about the future direction, as opposed to what's happening in the here and now," said Moorhead, referring to both HP's plans and Whitman's complaint about competition from Microsoft. ◆

144,000

Mobile Devices Supported on a Single Cisco Unified Computing System

67%

Reduction in Desktop TCO



5,000

Microsoft Windows® Desktops in 30 Minutes

1 Cisco Unified Computing System

Best-in-Class Virtualization with Cisco Servers.

Find out more at cisco.com/servers

intel inside® Xeon®

With Intel® Xeon® processors

CISCO™ TOMORROW starts here.

For more performance information, visit cisco.com/go/ucsbenchmarks.

© 2013 Cisco and/or its affiliates. All rights reserved. All third-party products belong to the companies that own them. Cisco, the Cisco logo, and Cisco UCS are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All other trademarks are the property of their respective owners.

Twitter Faces a Tough IPO Process

The fast-growing company must put years of steep losses behind it and learn how to attract new users. By Sharon Gaudin

TWITTER EXECUTIVES will face a big challenge when they hit the road to convince investors that the company has long-term potential as it seeks to raise $1 billion in an initial public offering.

Financial analysts and investors on Wall Street and elsewhere are set to ask tough questions about Twitter's history of steep financial losses and its challenging future, when it will face what company officials acknowledge will be the difficult task of finding ways to keep its user base growing.

"The market is ready for Twitter," said Dan Olds, an analyst at Gabriel Consulting Group. "The question is if Twitter is ready for the scrutiny it's going to get. It will have to submit to the most thorough physical imaginable, which will be even more intense due to the Facebook debacle."

The financial losses and user retention issues are but two of 55 short- and long-term business risks listed by the company earlier this month in its pre-IPO S-1 filing with the U.S. Securities and Exchange Commission.

> “I'm the **last person** you'd want to ask how to make a smooth IPO.
>
> [illegible]

Twitter also has to face many potential investors who were burned in the aftermath of rival Facebook's IPO in May 2012. After an initial buying frenzy cooled, Facebook's opening price of $38 per share dropped by more than half in four months. It took more than a year for Facebook stock to regain its opening day price.

Facebook CEO Mark Zuckerberg weighed in on a possible IPO by his social networking rival at the TechCrunch conference last month. Asked to offer Twitter advice on how to navigate the IPO process, a laughing Zuckerberg told an audience, "I'm the last person you'd want to ask how to make a smooth IPO."

But Facebook's troubles might help Twitter. "I would certainly hope Twitter learned from the Facebook IPO debacle," said Patrick Moorhead, an analyst at Moor Insights & Strategy.

Analysts say Twitter executives should try to persuade Wall Street and individual investors to focus on the company's growth potential rather than its heavy losses — $128 million in 2011, $79 million in 2012 and $69 million in the first six months of 2013.

They note that Twitter generated $317 million in revenue — 85% from advertising — in 2012, almost three times more than in 2011, and it values itself at about $9.7 billion, according to the IPO documents.

And Twitter may have found ways to get significant revenue from mobile users — something that Facebook had trouble doing early on. Analysts say a lack of mobile sales was a major cause of Facebook's woes in its first year as a public company.

In its SEC filing, Twitter said that, in the first half of 2013, 65% of it advertising revenue was generated from mobile devices and three quarters of its "average monthly active users" accessed the site from mobile devices.

The $1 billion that Twitter hopes to raise from its IPO could help the company aggressively expand its business and make across-the-board investments in hiring, operations and acquisitions, analysts said.

The IPO is expected to be completed by mid-November. ◆

Zach Miners *of the IDG News Service contributed to this story.*

REUTERS / KACPER PEMPEL

SURE, EVERYONE'S TALKING CLOUD MIGRATION

WE BRING IT DOWN TO EARTH

When a cloud was just a cloud, NTT DATA was there—delivering customer-centric IT applications and infrastructure to businesses across the globe. Now that "The Cloud" has pervaded the landscape, we're here to demystify what that means with business strategies and a technology roadmap that give you the flexibility you need to pursue new growth anywhere and everywhere your customers and prospects live. Talk to us about a cloud strategy grounded in reality. **Visit NTTDATA.com/flex**

THINK SMART. ACT FAST. **FLEX YOUR BUSINESS.**

NTT DATA
Global IT Innovator

THE Grill

Dat Tran

This IT leader is working to create an integrated experience to better serve U.S. veterans.

Favorite tech toy: Samsung tablet

Do you have any outside interests? "Both of my kids are trained in tennis, so I spend all my time [away from work] playing tennis with them and driving them to tournaments."

What's on your reading list? The Bible, *The Signal and the Noise: Why So Many Predictions Fail – But Some Don't*, by Nate Silver, and *Naked Statistics: Stripping the Dread from the Data*, by Charles Wheelan

Hometown: "I was born and raised in Vietnam, but I consider my U.S. hometown Columbus, Ohio. That's where my family first settled after the Vietnam War. We were on one of the last helicopters out of the U.S. Embassy [in 1975]. I'm a big Buckeyes fan."

THE U.S. DEPARTMENT OF VETERANS AFFAIRS *has been collecting data for nearly a century. But Dat Tran, the VA's deputy assistant secretary for data governance and analysis, says it's not enough to just collect data. He says the VA needs to transform its data into information that gives decision-makers insights into veterans' needs. Tran is leading the effort to do that, to establish strong data governance and apply predictive analytics so the department can better serve the country's veterans. It's a monumental task, but Tran says it's essential so the government can help its veterans in the most effective, efficient manner possible. Here he discusses the challenges of big data at the VA and elsewhere.*

What's the most common problem with big data? We get overwhelmed with it, because we don't really know what we have from an organizational perspective. We have a lot of silos of data, but we don't look at it or understand it. A lot of organiza-

Copyright 2013 VMware, Inc.

You know what virtualization did for computing.

Why stop there?

The Software-Defined Data Center from VMware.

Only one virtualization partner gives you the ability to virtualize, automate and control all data center resources: servers, storage, networking and security. Unlike competitors who stop at the server level, VMware delivers the Software-Defined Data Center, the complete virtualization platform for the new cloud era.

vmware®
Visit vmware.com/sddc

tions I've dealt with, the data we capture and use is for operational purposes, but we don't look at it from a business-process perspective and understand how to use it for better decision-making. And many organizations aren't organized to have true data governance to manage and govern the data and information they have. When I talk about data governance, I'm talking about how to deal with people, process and technology.

What does good data governance look like? The framework for good data governance must address four critical domains: infrastructure, knowledge process, human capital and the fourth, the most important, is the culture. We need to have the infrastructure in place, the software, the hardware, the network. And databases need to be streamlined to eliminate redundancy and enable us to have a single version of the truth. The knowledge process: We basically need to shift from an operational focus to a more analytic focus, not only to report what has happened and what's currently happening but to use what we know to apply predictive analytics to understand what will be happening in the future.

With human capital, oftentimes we see people just looking at data from their perspective, they collect and update data, but we need to look at it at an enterprise level. And many don't have a culture that places a high value on data and information. We need to instill a culture where data is viewed as an asset.

What was the challenge you faced when you stepped into your current role? When I came into the job, one thing I learned is that we as a department have a lot of data. Big data is not new to us. It's been around a long time in the VA, but we didn't have a customer-centric view of our data. Most of our customers are veterans and family members, but we don't have an information environment that allowed us to see a 360-degree view of veterans we are serving and veterans we aren't serving, i.e., those who aren't applying for VA services. And if we don't have a 360-degree view, it makes it tough to do proper planning and proper budgeting. And it was very tough for us to do good analytics on the veteran population.

Was this a people, culture or technology issue? It's a combination of all of the above. The Veterans Administration was first established 83 years ago, in 1930. The department started with one or two business lines, but eventually Congress and this country added on more services for veterans. So as a result, what we ended up having is an organization with many business lines that are basically stovepiped, so the culture as well as the technology were built and grown from a stovepipe fashion.

It was no one's fault, but what we recognize today is we need to be able to take care of our veterans from a veteran's perspective. When veterans come to the VA, they don't look at us as veterans healthcare or veterans home loans. They look at us as the veterans department. But we don't have the data environment to support that. We don't have that one integrated data environment that allows us to see a veteran as one individual. That's what we're working on with the Customer Data Integration initiative.

How far are you into this initiative? We're about to wrap up the work of our skunk works with recommendations to the senior leaders on what the needs are for the upcoming fiscal year, what pieces we need to start putting the big picture together.

You've talked about the importance of a chief data officer. Do organizations really need a C-level executive to harness the power of their data? Personally, I believe that an organization needs to have a chief data officer as a dedicated role that reports to the highest possible level, either the CEO or the COO. The chief data officer should be someone who knows about the business and the technology.

I work with folks who claim to be data people, but they're data people who have no business experience, they're more experienced on the IT side, or they have no experience with the technology, they only understand the data from the business side. The chief data officer would be someone who could speak to both the technology folks and the business folks and serve as the link that pulls business and IT together.

Are you seeing more of them? I believe you're starting to see some. There are a couple progressive companies [that have] chief data officers. There are some where the CIO and chief data officer are the same person.

— *Interview by* Computerworld *contributing writer* **Mary K. Pratt** *(marykpratt@verizon.net)*

> “ **When veterans come to the VA,** they don't look at us as veterans healthcare or veterans home loans. They look at us as the veterans department.

THE CLOUD

LOVES A WINNER.

With the cloud as your ally, we predict an unprecedented winning streak for your business. Because a smartly managed cloud means an unstoppable cloud. And in our experience, unstoppable tends to mean you win. **bmc.com/thecloud**

© 2013 BMC Software, Inc. All rights reserved.

bmcsoftware

IT'S AMAZING WHAT I.T. WAS MEANT TO BE.

Introducing

UNIFY

Unifying business communications
for the new way to work.

unify.com

UNIFY Harmonize
your enterprise

Formerly Siemens Enterprise Communications

THORNTON A. MAY

The Future Needs CIOs

SEVERAL WEEKS AGO, a group of enterprise CIOs gathered to celebrate the 32nd birthday of CIO-ness. That's right, the "chief information officer" job title is 32 years old.

There are several origin myths associated with the CIO position floating around our industry, but all of them roughly place the moment of CIO conception as sometime during 1981. I asked the hundred-plus CIOs in attendance to think back to what they were doing when they were 32. Doing pattern recognition on the responses revealed much. The most important observation was that by age 32, the executives in the room emphatically concluded that their careers were not over. They unanimously agreed that from age 32, their jobs got bigger, better and different.

We should all be able to conclude with equal certainty that at age 32, the CIO job is not over either. Not even close. Things are going to get bigger, better and different on a massive scale.

But for some reason, subscription research firms in our industry insist that the role of the CIO is in decline and will soon be relegated to the dust heap of history. This is patently absurd. Think about it. We are on the cusp of a digital renaissance. Yet the CIO will have no role to play in the new era that is dawning?

The boffins at Cisco and GE prophesy that "waking up" the things of our lives (that's the action at the root of what is referred to as the Industrial Internet and the Internet of Things) has the potential of unleashing $14.4 trillion in economic value. Peter Weill and his merry band of geniuses at the MIT Sloan School of Management's Center for Information Systems Research are deep into research describing the various paths by which modern enterprises are becoming digitized. Scholars at Oxford University forecast that by 2033, 47% of the jobs in America may be eliminated by computerization.

You don't have to be a crystal-ball-packing futurist to know that IT is going to be a big part of whatever comes next. No one doubts that technology is going to be a big part of the future. Why do so many people think the CIO is going to disappear just when the party starts to get interesting?

I'm not saying that every CIO should be at that party. I admit that there are a few bad apples in the CIO bushel basket. They are the folks who interview well, last about 18 months and then slink off quietly to destroy value at some other unsuspecting enterprise, leaving the organization that hired them (and the poor worker bees in the IT department) to clean up their mess. But the vast majority of CIOs are amazing. They understand the business better than just about anyone else. They have mad relationship skills and actually care about their people. They are wicked smart and scary funny. I am so tired of academics, consultants and vendors beating the "they only speak geek" drum. The empirical evidence does not support this misconception.

The path ahead is exciting and requires leadership. To posit, ad hominem, that incumbent CIOs are wholly not up to the myriad and constantly morphing tasks associated with a rapidly digitizing civilization is a fallacy being foisted upon enterprises by revenue-scrounging executive search firms. They should be ashamed. It is ludicrous to believe that by importing a digital shaman (a.k.a. a chief digital officer), an enterprise will be able to realize the full fruits of the technology buffet set before us.

The reality is — just as it has been for the past 32 years — that organizations get the IT they deserve. ◆

> For the CIO job, things are going to get bigger, better and different on a massive scale.

Thornton A. May is author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College in Jacksonville. You can contact him at thorntonamay@aol.com or follow him on Twitter (@deanitla).

INNOVATION *vs.* MAINTENANCE

Many IT leaders admit their spending is too heavily weighted toward keep-the-lights-on projects. Here's how to tip the balance. **BY MINDA ZETLIN**

SOCIAL! MOBILE! BIG DATA! BYOD! You probably already know what your company's executives most want to see from your IT organization. But unless your company is very new, or you're unusually lucky — or a very, very good manager — more than half your time and resources are spent, not on innovative projects, but on "keep the lights on" activities whose sole purpose is to prevent existing systems from breaking down. And sometimes the percentage is a lot higher than that.

"I've seen companies where it's 80% or 90% of the IT budget," says Columbia Business School professor Rita Gunther McGrath, who examined this issue for her book *The End of Competitive Advantage*. "I think it should be no more than 50%," she adds.

NATE WILLIAMS ILLUSTRATION

Most CIOs would agree with her, but can't achieve that 50-50 split in their own budgets. In a recent Forrester Research survey of IT leaders at more than 3,700 companies, respondents estimated that they spend an average 72% of the money in their budgets on such keep-the-lights-on functions as replacing or expanding capacity and supporting ongoing operations and maintenance, while only 28% of the money goes toward new projects.

Another recent study yielded similar findings. When AlixPartners and CFO Research surveyed 150 CIOs about their IT spending and their feelings about IT spending, 63% of the respondents said their spending was too heavily weighted toward keeping the lights on.

Why So Difficult?

If no one wants to spend such a huge portion of IT's funds just to run in place, why does it keep happening? One explanation lies in the term "keeping the lights on" itself: Turning the lights *off* isn't an option. "It's the ante that allows you to hold on to your job," says Eric Johnson, CIO at Informatica, a data integration company in Redwood City, Calif., with annual revenue of $812 million. "If the systems are down and the phones aren't working, no one will care how innovative you are."

Of course, new projects are very important, so the challenge is to do both. "CIOs are striving to be business executives, truly driving value for the organization," Johnson says. "That's why there's so much emphasis on keeping the lights on while still finding the budget to drive innovation."

» Keeping the lights on eats up 80% to 90% of some IT budgets, says professor Rita Gunther McGrath.

A bigger problem has to do with the traditional approach to IT at most companies, where techies who are expected to abide by the principle that "the customer is always right" find themselves creating unwieldy systems in an ongoing effort to give the business exactly what it asks for. Keeping those systems running is usually difficult, time-consuming and expensive. "I've worked with a lot of companies where the CEO says, 'I want you to do this, this and this.' The CIO says, 'That'll be $5 million.' The CEO says, 'Do it for $3 million.' So it's patch, patch, patch," McGrath says. That approach creates "technical debt" — something you'll have to go back and pay for later — according to Bill Curtis, chief scientist at CAST, a software analysis company headquartered in Meudon, France, with annual revenue around $47 million.

Similar problems arise when IT tries to satisfy business needs too quickly. "Sometimes these things were built as 'Let's just get something up and see how it works,'" Curtis says. "Things that were designed as a demo suddenly have to grow. Or even if something was designed appropriately for what they thought would be the use, people kept adding new requirements and features until it became a kludge."

Perhaps worst of all is the tendency to customize licensed software in an effort to fulfill business requirements — whether or not those requirements have any real bearing on the organization's goals or success. "We talk about business capability — the list of things a business needs to do to be successful and achieve its goals," says Nigel Fenwick, an analyst at Forrester Research. "Out of 30 high-level capabilities, maybe two or three are differentiators." When senior executives understand this well, he says, they encourage IT to focus on those key areas and seek standardized, easy-to-maintain solutions for everything else.

Unfortunately, such understanding is rare. "It's hard to get the CEO to stand up and say, 'This is the way we're going to do it,'" Fenwick says. But if the CEO doesn't do that, he adds, "every little department will want to customize the technology to make their part of the business run more efficiently — and so they should." After all, each department is being judged on its own efficiency, and anything that can make it run better is a good thing — from the point of view of the department's managers. But the approach leads to systems that are difficult and costly to maintain.

"Over the past 10 to 20 years, we've plowed millions of dollars into software customization to support generic capabilities," Fenwick says. "It has made IT more complex, made interfaces more difficult, reduced IT's agility and added cost."

There's one last reason it can be difficult to contain keep-the-lights-on costs: You may become a victim of your own success. "We've determined that it'll be pretty tough to get to 50-50," says Peter Forte, CIO at Analog Devices, a semiconductor maker head-

NEW OPPORTUNITIES WITH NEW DOMAINS

Choose from **over 700 new top-level domains**! Create a short, memorable web address that perfectly fits your business or brand, such as **your-name.blog**, **auto.shop** or **events.nyc**. You can also make your website easier to find by getting new extensions for your existing domain.

With 1&1, it is easy to connect a registered domain to any website, no matter which provider is hosting your website.

Find out more at **1and1.com**

NEW!
PRE-RESERVE
FREE
WITH NO OBLIGATION!*

MEMBER OF
united internet

1&1®

DOMAINS | E-MAIL | WEB HOSTING | eCOMMERCE | SERVERS 1and1.com

* Pre-reserving a domain name does not guarantee that you will be able to register that domain. Other terms and conditions may apply. Visit www.1and1.com for full [illegible] details. Program and pricing specifications and availability are subject to change without notice. 1&1 and the 1&1 logo are trademarks of 1&1 Internet, all other [illegible] property of their respective owners. ©2013 1&1 Internet. All rights reserved.

quartered in Norwood, Mass., with annual revenue of $2.6 billion. "The reason is, the more successful you are on the right-hand side, that drives more activity to keeping the lights on. Every new system we deploy is a system that needs to be maintained."

Here's a look at strategies that can help CIOs who want to spend less on keeping the lights on and more on innovations that will help the company reach its goals.

Virtualization

If you haven't gotten around to virtualizing servers, you may find that doing so is an effective way to cut keep-the-lights-on costs. Forte discovered that when a normal cyclical low in the semiconductor industry coincided with the worldwide economic downturn of 2009. "We lost 30% of our revenue almost overnight," he says. As a result, IT had to quickly cut 30% of its costs, leading to significant layoffs.

At the time, Analog Devices was about 45 years old, with the legacy infrastructure to prove it. "The first thing we did was calculate what percentage of our investment would be needed to keep the lights on," Forte says. "It was in the low 80s." For a technology company whose success depended on its ability to rapidly bring new products to market in large numbers, that was not acceptable. So IT launched a three-year effort to shift that balance. Today, Forte says, Analog Devices spends 62% of its IT budget on keeping the lights on and 38% on growing the business. That's not 50-50, but it's a meaningful improvement.

There were several elements to the program, but virtualization was one of the most effective. "We moved from an environment where we were 100% physical to over 90% virtual," he says. That saved several million keep-the-lights-on dollars that the company poured back into innovation. At the same time, Analog Devices switched to a service catalog approach, automating such tasks as resetting passwords for employees — something that help desk staffers previously did over the phone about 1,800 times per quarter. "Those technologies swooped in and saved us," Forte says.

Cloud Computing

For many companies, moving services to a public, private or hybrid cloud also has a huge impact on costs. Johnson estimates that Informatica spends about 60% of its IT budget on innovation and only 40% on keeping the lights on, and heavy use of the cloud is one reason why. "We have more than 30 enterprise software-as-a-service operations," he says. "We have a mantra: 'Cloud first.' Can we do it with a hosted cloud solution? If not, and we have to buy it, that's fine. [But] building it custom is always the last resort."

And security concerns shouldn't keep you out of the cloud, Fenwick says. Business executives "need to look at how much it matters if something is running in a data center 100 miles away and owned by the company versus one that's 100 miles but owned by another company," he says. "People don't really understand the relative risk of someone hacking into our data center compared with Amazon's data center."

Standardization

Eliminating customization for any function that isn't a key differentiator can substantially reduce keep-the-lights-on costs. "People have done a lot of the easy stuff," Fenwick says, referring to the fact that virtualization and cloud computing have already had big impacts on many IT budgets. Standardizing software is the next thing you can do to meaningfully cut costs.

But while standardization can create great efficiencies, it can be a hard sell. That's because, unlike the cloud or virtualization, standardizing — whether on SaaS or off-the-shelf applications — requires users to change how they do their work. "If you're buying something off the shelf, it's by definition not going to be designed for your processes," McGrath says. "And once you start tinkering with it, you lose the benefit."

The key is to have the discipline to say, "We are not going to customize this. . . . We're not going to make changes that will make it more difficult for us to be agile." Fenwick says.

Johnson says standardizing both technology and business prac-

SHOULD YOU RETHINK YOUR BUDGET?

If keep-the-lights-on work takes up too much of your IT budget, maybe the problem is with your budget. So says Bruce Myers, managing director in the IT and applied analytics practice at consulting firm AlixPartners.

"People make the mistake of lumping keep-the-lights-on and grow-the-business projects together in one budget," he says. "Then they look at IT as a percentage of revenue. It has become a commonly used benchmark. What some companies are doing, and we suggest all companies should, is look at the cost of keeping the lights on as a percentage of revenue and manage that number down as much as they can. Improve-the-business projects should be treated like any other capital projects and compete for funds against other non-IT initiatives. If there's a business case, the only limiting factor should be the amount of cash or capital available."

Why is this better? For one thing, you're likely to make better decisions, according to Myers. Right now, some IT projects that should get done are probably being skipped because IT has used up its budget. And some projects that probably should be skipped are being done so IT can use up funds it might otherwise have to forfeit in the next budgeting cycle.

Myers believes too many bad projects go forward with a weak business case. "We spend a lot of time working in IT organizations from a business perspective," he says. "I can't remember one where we haven't cut 50% of their projects because when you really drilled into them, there wasn't a huge risk it was mitigating, or a real quantitative business case where a business unit had asked for the project's specific benefits."

Perhaps paradoxically, removing grow-the-business projects from IT's budget altogether seems to accomplish the goal of lower keep-the-lights-on costs. "And typically these costs are lower than when there's only one IT budget," says Nigel Fenwick, an analyst at Forrester Research.

More important, if new IT initiatives are [illegible] out of business units' budgets, those business units take financial responsibility for those projects. "My goal is never to have to [illegible] of the CFO and explain why IT is [illegible] much money," says Michael Leeper, [illegible] of global technology at Columbia Sportswear. "The question should be, 'Why is the business asking IT to spend so much?' We [illegible] things [illegible] — but it isn't [illegible]."

[illegible]

verizon

HARNESSING THE
POWER OF THE CLOUD FOR MOBILITY.

MOVE FASTER, RESPOND QUICKER AND **ACCELERATE INNOVATION.**

Due to increased data volume, **over 50% of organizations surveyed will boost investments in cloud solutions** over the next year.[1]

Leveraging the cloud in an era of mobility.

In today's fast-paced, data-driven business world, getting the right information to the right people is getting more complex. Cloud and mobile technology adoption is drastically changing how enterprise data is exchanged and stored. Businesses that quickly build and deploy applications that take advantage of these technologies will reap the biggest rewards.

Mobile devices and cloud-enabled apps, such as customer relationship management (CRM) and enterprise resource planning (ERP), help improve employee productivity and customer services in big ways. However, they also present challenges for IT managers tasked with keeping mobile data secure. Employee-owned devices add yet another level of complexity for IT in managing a variety of device styles and protocols. Providing the right levels of access to the right people is critical as enterprises transition to a mobile workforce. Having the right policies and procedures in place can help deliver the peace of mind that your infrastructure, data and apps are protected and secure.

THE IDC SURVEY OF CIOs RANKED **"FOCUS THE I.T. ORGANIZATION MORE ON BUSINESS STRATEGY THAN TECHNOLOGY STRATEGY"** AT THE TOP OF THEIR AGENDAS.[2]

---

[1] IDG Research Services, March 2013.
[2] IDC's 2012 CIO Sentiment Study.

Business objectives are **driving today's technology decisions.**

Cloud and mobility are here to stay, and are gaining momentum. In the wake of these technology shifts, business executives are putting pressure on their IT departments to innovate with technology to help them capitalize on new business opportunities while keeping their data secure. In turn, IT departments need to build strategies that support mobility and take full advantage of the cloud in new ways that meet business objectives, as well as being secure. With the speed of 4G LTE and proven security solutions, Verizon is poised to support both business and IT mobility objectives, so everyone can achieve their goals.

Getting the right levels of security to the **right devices, people and systems.**

With the proliferation of employee-owned devices being used in business environments and unprecedented consumer access to corporate information, IT now has to contend with managing varying operating systems, devices, identities and applications to provide safe data access. So, how can they effectively secure data in order to take full advantage of the cloud's benefits? Taking a top-down approach to security can help IT maintain security in the cloud. The first step is to assess your core business priorities to determine your cloud security standards. Then you are ready to establish technology policies and procedures for employee-owned devices and data access. With our deep knowledge of security and cloud systems, Verizon Terremark is ready to help you can create a new, data-centric cloud security model that supports both your business and IT mobility goals.

SIX STEPS

TO DEVELOP A SECURE CLOUD STRATEGY
USING DATA-CENTRIC SECURITY MANAGEMENT

❶ **Start with data.**

Classify data based on risk and sensitivity levels according to your business values. Archive or delete any unnecessary data.

❷ **Address your users.**

Designate user access based on specific roles and a need-to-know basis.

❸ **Choose the right cloud.**

Find the cloud environment that fits your enterprise based on your data.

❹ **Determine your controls.**

Take a data-centric approach to identify and implement controls based on your data standards and cloud feasability.

❺ **Bring it all together.**

Engage a cloud provider with the expertise and inherent security to deliver secure and flexible data migration solutions.

❻ **Validate and monitor.**

Implement continuous monitoring to verify that controls are protecting assets as intended.

> “While smartphones may have faster processors than before, computing demands may still outstrip adaptability of the processing utility in cellphones and tablets. This pushes for additional forms of cloud computing to support the need of applications.”
>
> —**John Considine**
> **Chief Technology Officer,**
> **Verizon Terremark**

Verizon Terremark Cloud is built to **support your mobility objectives.**

Verizon Terremark is a leader in delivering scalable and cost-effective cloud services that can help keep your business at the forefront of technology and ahead of the competition. As your technology partner, Verizon works with you to determine the type of cloud service that is right for your business, whether it's Infrastructure as a Service (IaaS) or a private, public or hybrid cloud.

We help you successfully bring mobility and the cloud together to improve productivity for your employees and simplify workloads for your IT staff. Verizon Terremark helps you build a truly secure cloud—from migrating data to preventing, detecting and responding to threats. By harnessing our unique expertise with both mobility and cloud services, you can move your enterprise confidently into the future.

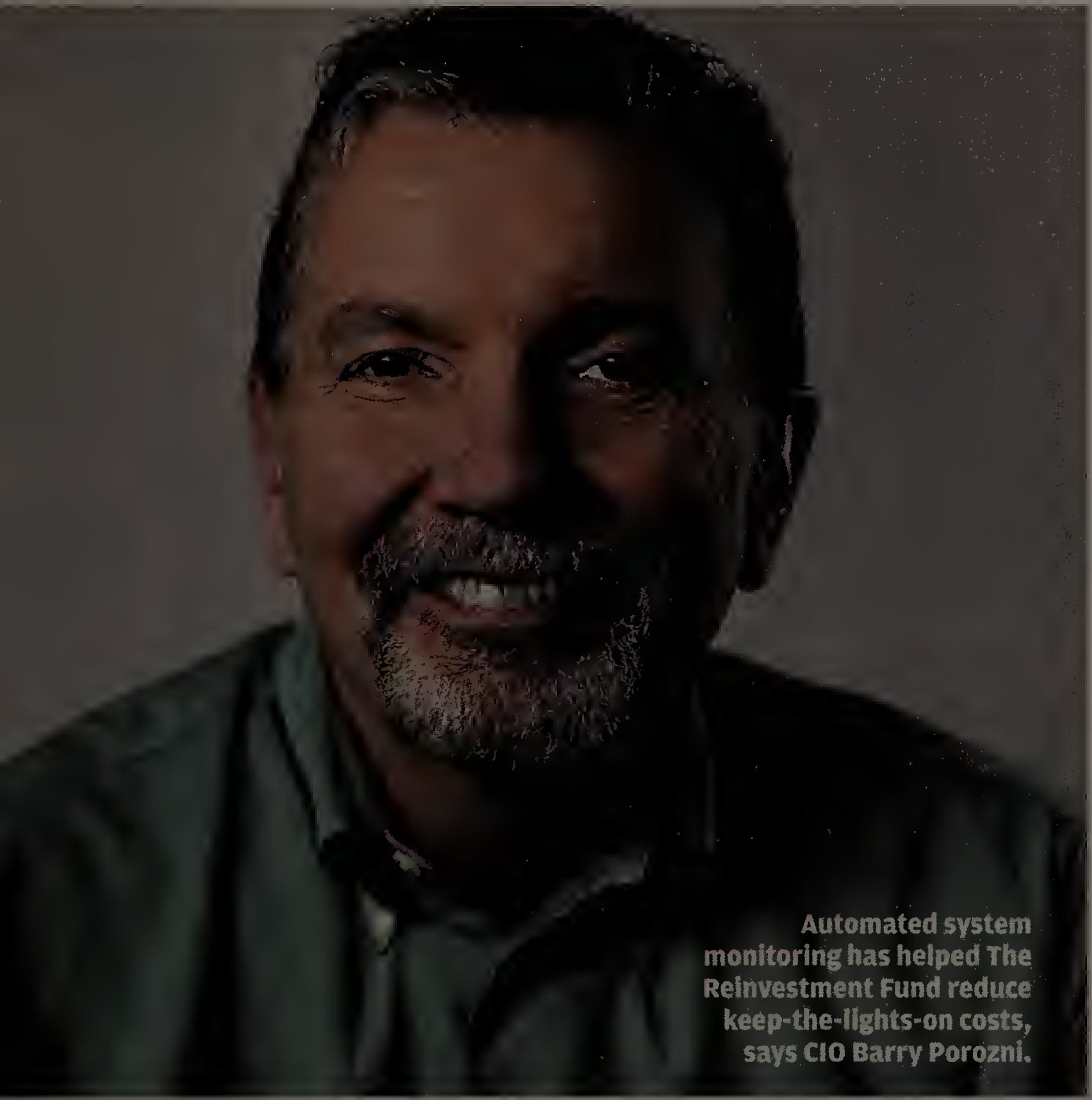
VERIZON TERREMARK CLOUD SERVICES INCLUDE:

+ **Infrastructure as a Service (IAAS)**
+ **Secure Cloud**
+ **Cloud Defense**
+ **Hybrid Cloud**
+ **Business Continuity**

To discover more, contact a Verizon specialist, or visit us at
VERIZONENTERPRISE.COM/DYNAMICCLOUD

verizon

4G LTE is available in more than 500 markets in the U.S. Network details & coverage maps at **vzw.com**. © 2013 Verizon Wireless.



Automated system monitoring has helped The Reinvestment Fund reduce keep-the-lights-on costs, says CIO Barry Porozni.

tices helped Informatica get to the point where it spends 60% of IT's budget on new initiatives. "You make sure you don't have 10 ways of doing something," he says. "You have one way of doing it."

Planning Ahead

One thing that makes keeping the lights on much more costly is the need to make unexpected repairs. You can save money — and lead a more pleasant life — if you plan ahead and prepare for system maintenance needs.

For The Reinvestment Fund, a Philadelphia-based community development financial institution that manages $700 million in funds, automatic monitoring of the IT infrastructure's operations has made a huge difference, says CIO Barry Porozni. "Upgrading our monitoring system was one thing that really made an impact," he says. "It probes into applications and devices so we know proactively if email is down — we don't need users to come to us. Same thing with data storage — we're very data-intensive, and it tells us how close we are to running out of space."

The new monitoring system has freed up a lot of time, Porozni says. Previously, he and his staff had to go through a checklist first thing in the morning and last thing in the evening to make sure all systems were functioning well. Adopting the new technology and other steps have helped cut the percentage of the IT budget devoted to keeping the lights on from about 80% to about 70%, he says, and he aims to get it much lower.

For Michael Leeper, director of global technology at Columbia Sportswear, a Portland, Ore.-based outdoor clothing retailer with $1.67 billion in annual revenue, planning ahead also means not doing anything you're likely to regret later. "Hopefully, you've done your homework so you don't have to create short-term solutions just to solve a problem," he says. At the same time, though, he's careful not to turn down requests from business people.

"Inevitably, you have to do something you don't want to do just to make people happy," he says. When that happens, it's important not to leave the quick fix in place, but to go back and improve it. "Once that first [request] is up and running, you start figuring out how to fix it," he says. "We'll show the business what they're asking for, and then go fix it in the background. You don't want to start building on something that's bad."

Planning ahead also applies to projects designed to grow the business, so Leeper and his team are in the habit of piloting new projects before anyone asks for them. "Once the platform's stable and current, the next thing we do is make a small investment in technology we may not need immediately," he says. One example is virtual desktops — Leeper saw that there might be a need for them so he implemented some to learn about them. "Then when the business did come to us, we didn't have to tell them to wait," he says.

Selling Your Vision

Marketing your ideas for taming keep-the-lights-on costs, both within IT and to the company at large, is an important step. Indeed, as Analog Devices went through the painful process of recovering from layoffs and then bringing its technology up to date, Forte used a simple phrase to tell both his IT colleagues and Analog executives what the team was up to: "Shrink the footprint, shift the balance [from keep-the-lights-on toward innovation], optimize services."

"The importance of communication can't be overstated," he says. That was especially true when he took over as CIO in 2009. At the time, customer satisfaction with IT was low. "I kept telling people, 'Hang in there, we'll get things in order,'" Forte recalls. "I spent time with every vice president in the company, telling the same story: Shrink, shift, optimize."

By staying relentlessly on message, Forte gave both the business and his IT group a good grasp of the priorities and what still needed to be done. "I was giving a talk at a local college about business-IT alignment," he says. "I said, 'You can walk up to anyone who works in IT at Analog Devices, ask them what the three most important initiatives are for IT, and you'll get the same answer.'" One student happened to have a friend working at Analog, so she called her friend to test Forte's assertion. Sure enough, when asked for the top priorities, the student's friend answered, "Shrink, shift, optimize."

Still, though you may have a grand vision for bringing down keep-the-lights-on expenses, Leeper advises starting out with small steps. "You'll never get anywhere if you try to do it all at once," he says. But it's important to start somewhere. "Pretty soon, you begin accomplishing little upgrades with little payoffs," he says. "And then one day you'll look around and think: 'Hey, I did it all.'" ◆

Zetlin *is a technology writer and co-author of* The Geek Gap: Why Business and Technology Professionals Don't Understand Each Other and Why They Need Each Other to Survive. *Contact her at minda@geekgap.com.*

IT Gets Its **Green** On

As these companies have discovered, when IT projects focus on operational efficiency, sustainability benefits usually follow.

BY ROBERT L. MITCHELL

WHEN KEVIN HUMPHRIES talks about green IT at FedEx, you won't hear much about reducing the company's carbon footprint. FedEx embraced the new math of green IT when it engineered every inch of its new, LEED-certified 46,000-sq.-ft. data center for maximum operational efficiency. "We found the most optimal mathematical model for capacities and efficiencies," says the senior vice president of IT at FedEx Corporate Services. The result is what he calls "a perfect blend" of green energy usage, fiscal savings and

THINKSTOCK

rational utilization of equipment and resources.

Elements of the design included flywheel backup power generators, variable-speed fans that help keep the facility's Power Usage Effectiveness (PUE) rating low, and air-side economizers that generate 5,000 hours per year of free cooling for the Colorado Springs building. FedEx also raised the operating temperature in the data center by 5 degrees to cut the cooling bill. Meanwhile, specific rack cooling technologies, alternative energy sources and other systems were not included because FedEx felt they were risky, prone to failure or required undue maintenance. "We had to find the perfect blend of simplicity and advanced technology," Humphries says.

Because the hype and excitement over green IT has diminished over the past few years, and the specter of carbon taxes has faded, organizations have begun to put sustainable IT initiatives on the back burner, or even dismiss them entirely. But successful green IT projects usually go hand in hand with operational efficiency initiatives, where benefits drop down to the bottom line while meeting corporate sustainability goals. "Did we make any trade-offs with efficiency versus cost? There were very few," Humphries says.

The good news is that there are still plenty of relatively easy ways to make your facilities more eco-friendly. "Your average data center remains relatively inefficient," says Simon Mingay, an analyst at Gartner. And that means green IT affords lots of opportunities for gaining favor with the CFO as well as the corporate sustainability advocate. There's even a road map to follow: The best practices for energy efficiency are now well established and readily available from resources such as The Green Grid (see box, next page), and standards for water usage, carbon usage, renewable energy and e-waste are evolving rapidly.

Ian Bitterlin, chairman of The Green Grid's EMEA Technical Work Group and CTO at Emerson Network Power Systems, says there are three steps to maximizing efficiency: Cut consumption, make IT processes more efficient and think about alternative energy — in that order. "If you put them in the wrong order, you'll just waste renewable energy," he says.

Virtualization End Game

When it comes to reducing consumption and improving operational efficiency, consolidation through server virtualization still offers the biggest bang for the buck. While many IT organizations are working to virtualize more of their legacy server infrastructures — FedEx is now 80% virtualized — Raytheon has already reached the finish line. "All legacy servers have been transitioned, [and] as a result, 2013 will be the last year that we capture and report on the energy and cost savings," says Brian Moore, IT sustainability program lead. The emphasis now turns to desktop virtualization using energy-sipping thin clients, e-waste reduction, and the use of analytics and data center instrumentation to monitor, manage and reduce energy use.

At Northrop Grumman, server virtualization was part of a data center consolidation effort, completed in August, that eliminated 4,000 physical servers while consolidating 19 data centers and 81 smaller server rooms into three facilities. But like its desktop power management program, which cut energy use for desktops by more than 21%, the server virtualization was driven primarily by a desire to improve operational efficiencies and the bottom line. Helping the company's GreenNG environmental sustainability program achieve its goal of reducing greenhouse gas emissions by 25% — a goal attained just one year into the three-year initiative — was a bonus. "Power consumption reductions were one of the benefits, but it was just part of our overall IT transformation strategy," says Brad Furukawa, vice president and CTO for Northrop Grumman's shared services division.

> **Power consumption reductions were one of the benefits, but [server virtualization] was just part of our overall IT transformation strategy.**
>
> **BRAD FURUKAWA,** VICE PRESIDENT AND CTO, SHARED SERVICES DIVISION, NORTHROP GRUMMAN

While server virtualization is well established, many organizations are still just getting started with desktop virtualization. But First National of Nebraska is well into a project to replace between 70% and 80% of its desktops with virtual desktops accessed through thin clients. The move will cut the hassle and headaches associated with disposal of desktop e-waste, which has been piling up in warehouses. "It was driving us crazy," says James Cole, senior vice president and CIO at the financial services firm.

First National of Nebraska has even extended the concept of virtualization to its chillers. It uses an off-premises utility that provides chilled water to multiple tenants in the local business district. Normally, each business would have its own closed-loop system, each with its own excess capacity. Virtual chillers let each business share capacity, improving energy efficiency and cutting costs, says Cole.

Turning Up the Heat

Kevin Humphries: [illegible]

A more controversial green computing initiative involves raising the maximum air intake temperature on equipment racks in data centers to as high as 80.6 degrees to reduce the energy demands of cooling systems, as Technical Committee 9.9 of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommended in 2011. But today, just 7% of all data centers run at 75 degrees or higher, according to a recent Uptime Institute survey. The idea of raising the temperature may seem anathema to many data center managers, but some organizations are slowly inching up their thermostats.

At Earth Rangers, a nonprofit focused on environmental education, IT systems director Rob DiStefano raised temperatures in a small data center from the high 60s in 2010 to 77 degrees, but stopped there when network storage temperature alarms went off. "Storage units are the biggest heat monster in the room," he says. He could have reconfigured the alarms from the factory defaults, but the idea made him uncomfortable. "We didn't want to risk it," DiStefano says. And with intake air temperatures at 77 degrees, air temperatures on the back of the racks were getting uncomfortably warm, says Andy Schonberger, director of the Earth Rangers center.

For his part, Humphries raised the temperature in the FedEx Colorado Springs data center by 5 degrees. He declined to say where the temperature is now set, but he says if he set the temperature at 76 degrees on the intake side of the racks, the temperature in the hot aisle would top 100 degrees. "Sending in someone to replace servers in 100-degree heat is not what we want," he says. Humphries says the law of diminishing returns kicks in as you approach the upper range of the ASHRAE limit: Fans run longer and equipment works harder, and adding heat containment would have gone against FedEx's commitment to simplicity in the data center. But raising the temperature 5 degrees in Colorado Springs yielded cost savings that are significant enough for the organization to begin phasing in a similar change at another major data center in Tennessee.

Savings also added up at Raytheon, which raised temperatures in the network distribution rooms in its Tucson, Ariz., facility from 65 to 75 degrees without running into problems. That step alone saved 112,000 kilowatt-hours per month — enough energy to power 100 homes, according to Moore. Raytheon has expanded the initiative to other facilities, but savings vary depending on location, total power use and other variables.

Roger Schmidt, an IBM fellow and chief engineer on data center efficiency, recommends that Web 2.0 and lower-tier data centers turn the needle closer to the 80.6-degree mark, but he says that even Tier 1 data centers in risk-averse industries such as banking can safely ease the mercury up to 75 degrees.

Another underappreciated strategy is to set up instrumentation in the data center that lets administrators monitor and manage both temperature and power use. Most IT organizations still don't do this, according to Gartner. Schonberger advises building a business case for this by tracking the half-dozen pieces of equipment that are your company's biggest energy consumers. "It doesn't save you any money, but it allows you to prioritize," he says.

Saving Green With Alternative Energy

Only after an organization has analyzed and instrumented its data center, eliminated redundancy and re-engineered to squeeze the maximum efficiency out of its IT infrastructure should alternative power come into play. First National of Nebraska became one of the first organizations to power a data center entirely on fuel cells when it built a new data center more than a decade ago. But when it was time to order new fuel cells this year, it was able to cut the power requirements from 600 to 400 kilowatts because management of its data center infrastructure had improved.

The operating cost, at 12 cents per kwh, is almost double the 6.2 cents First National's utility would charge. But First National had designed the building -

Green IT: Road Maps To Best Practices

The following guides to green IT metrics are available at TheGreenGrid.org:

- "Power Usage Effectiveness: A Comprehensive Examination of the Metric"
- "Water Usage Effectiveness (WUE): A Green Grid Data Center Sustainability Metric"
- "Carbon Usage Effectiveness (CUE): A Green Grid Data Center Sustainability Metric"
- "Electronics Disposal Efficiency (EDE): An IT Recycling Metric for Enterprises and Data Centers"

to use the waste heat from fuel cells to warm its interior and melt snow on some outdoor surfaces in the winter. Fuel cells also provide a very stable power supply and meet management's goals of using renewable energy, Cole says. But, he says, "if we were building the data center today, it would be a more difficult business decision."

FedEx uses solar and fuel cells in other facilities. But after considering solar, wind and fuel cells during the design phase for the Colorado Springs data center several years ago, it decided to pass. Of those technologies, fuel cells looked the most promising. The cost of power from fuel cells couldn't match utility rates, but the business was more concerned about the availability of commercial utility power than the economics, says IT director Brad Hilliard. What killed the idea was the location of service, which at that time was concentrated on the East and West coasts. Today, however, the technology and associated support infrastructure is more mature. Were he reconsidering that decision now, Hilliard says, "We would spend more energy on that because that local utility risk is so important to manage."

Fuel cells can be very efficient for data centers because the waste heat they generate can be used to cool the facility when fed into special absorption chillers. But from a purely economic standpoint, you still need fiscal incentives, such as tax breaks, to make them a viable business proposition, says Gartner's Mingay.

Beyond the Data Center

KPMG's IT team has taken the lead in driving green IT initiatives that go well beyond the data center. For example, IT pitched a 500 kW solar array to the real estate group for its Montvale, N.J., campus after sustainable IT leader Darren McGann heard a colleague at Microsoft discussing a solar project it had completed. The IT group also raised average operating temperatures to 79 degrees in its data centers after seeing a demonstration where Microsoft moved part of a data center into an outdoor tent to demonstrate the robustness of IT equipment. McGann claims that KPMG's data center was the first to generate power using gas micro turbine generators, and it reuses the waste heat in combination with absorption chillers to help cool the data center.

Gas-powered microturbines are more economical than fuel cells, but you still can't make the business case on energy savings alone, says Mingay. In most locations, you still need tax breaks, capital allowances or the policy tool known as "feed-in tariffs" to make them economically viable, although it can be more attractive in locations where natural gas is inexpensive.

IT is uniquely positioned to help make the business case for, and drive, other green initiatives that go beyond the data center, PCs and office automation equipment. At KPMG, for example, it was IT business process analysis and automation expertise that helped propel an initiative to create a paperless audit system.

IT also collaborated with the in-house travel group to encourage videoconferencing in lieu of travel. To do that, it created a JavaScript program within the travel services portal that determines when users request travel between locations where videoconferencing services are available and offers to redirect users to a videoconferencing reservations page before they complete their flight arrangements. "That increased videoconferencing by 85% in just three months," which increased productivity by reducing travel downtime, saved energy and reduced the company's carbon footprint by 60% in one fell swoop, McGann says. "What I'm most proud of is that the IT organization has been a constant contributor by engaging with nontraditional partners within the organization," he adds.

Many companies have adopted virtualization-by-default policies, and IT needs to extend that to "design green by default," says McGann. It's easier to make the business case when starting fresh, because retrofits are more expensive. But it's also important to have a clear understanding of what sort of commitment management is making toward energy and carbon reduction and align projects to meet those strategic goals.

"Many projects will align with an energy reduction goal or a leadership commitment the CEO has made," he says. "And once you connect the dots you can get leadership to go forward." ◆

For deeper network security

look beyond the obvious.

Dell™ SonicWALL™ next-generation firewalls can scan every byte of every packet while maintaining high performance. They go deeper than other firewalls by providing high-performance SSL decryption and inspection, intrusion prevention with sophisticated anti-evasion, and network-based malware protection leveraging the power of the cloud.

Go deeper at: www.sonicwall.com/deepernetsec

DELL
The power to do more

THINKSTOCK

KEEP NEW HIRES FROM JUMPING SHIP

IT-specific onboarding programs help savvy companies bring new hires into the fold and keep them there. Here are their best practices. **BY BETH STACKPOLE**

KEVIN HART, CTO at Cox Communications, is fresh off his latest meet-and-greet session for newly minted IT hires. Once a quarter, Hart hosts about 35 incoming employees at Cox's state-of-the-art "C-Tech" center, acquainting them with the culture of the cable giant, fielding questions about its technology stack, clarifying roles within the IT organization and outlining possible career paths.

Advancing Business,
Technology & Leadership Excellence

Proven IT Leadership Development Designed and Led by Future-State CIOs

- Chart your own path based on career aspirations and goals
- Identify opportunities across known IT competencies
- Learn from high-profile, experienced CIO mentors
- Tailor participation within three areas of professional development
- Utilize Boston University and Harvard Business Publishing courseware

Pathways: Start Your Journey Today

THE FUTURE→ STATE CIO®

Visit: council.cio.com/pathways
Call: +1 508.766.5696
Email: cec_info@cio.com

Powered by

CIO CIO Executive Council
Leaders Shaping the Future of Business

Hart's presentation is all part of Cox's formal Technology Onboarding Program, which kicked off companywide last year after its start as a grass-roots initiative within a specific operations team. In addition to the meet-the-CIO roundtable, the multimonth program, completed by all 150 new IT hires last year, includes an overview of the telecommunications industry, a crash course on current trends, an analysis of the competitive landscape, a road map to Cox's multifaceted business strategy, and a deep dive into the company's technology goals and IT transformation plan.

The Technology Onboarding Program was designed to complement Cox's general onboarding routines centered around HR and administrative practices, Hart explains. He estimates that the program, in its first year, has spurred a 15% improvement in IT productivity by facilitating a business-driven focus among new staff and ensuring that employees understand Cox's organizational structure so they know where to get what they need. Cox's turnover rate is lower than the industry average — a fact that Hart attributes at least in part to programs like the IT onboarding initiative. "Every little bit helps," he says.

And every little bit is crucial today in the telecom and cable industry, which is in the midst of a radical transformation driven by innovation and convergence. "In this new day and age, we are trying to acquire and retain great talent to help drive us through this technology revolution," says Hart, who also serves as executive vice president and CIO. "That means we need to develop new types of talent and invest even more to attract and retain them."

A lot of big companies, and, increasingly, many smaller shops, are finding themselves in a similar boat. With technology the centerpiece of most strategic business initiatives, companies like Cox are struggling to find people with expertise in next-generation technologies, from cloud computing to mobile. And, given the competitive nature of the job market, they must work even harder to retain those coveted employees once they find them.

> **"Onboarding is like a first impression — it leads someone to trust a company as a new hire and have great thoughts about them — or not.**
>
> **RACHEL RUSSELL,** DIRECTOR OF MARKETING, TEKSYSTEMS

The High Cost of Staff Turnover

Staff turnover, especially for critical high-salaried positions, can be extremely costly, experts say. According to data compiled by the Center for American Progress, businesses spend about one-fifth of an employee's annual salary to replace that worker.

That's why well-executed onboarding programs are important. If it hits the right notes, onboarding can help new hires be more productive in a shorter time, while also engaging them in the company's culture and business goals, practitioners say. "Onboarding is like a first impression — it leads someone to trust a company as a new hire and have great thoughts about them — or not," says Rachel Russell, who oversees research at TEKsystems, an IT staffing, talent management and services provider.

"Onboarding is essential so that the expectations between the employee and employer are very clear," Russell says. "The employee becomes empowered because they know what resources are available and what relationships they need to start forging. It tells them they are going to have the resources they need to get the job done."

In fact, according to a TEKsystems survey of more than 2,100 IT professionals and 1,500 IT leaders, both sides see significant benefits to IT onboarding done right. Sixty-two percent of IT leaders said onboarding programs played extremely important roles in establishing a new hire's ability to be productive and add value, while 46% said they were extremely important tools for determining whether a new hire would be successful in the company long term. The IT professionals were equally bullish on onboarding: Nearly half (49%) said onboarding was extremely important to their ability to be productive, while 44% said it was critical for success in the company long term, according to TEKsystems.

Despite unilateral agreement on the upside of onboarding, most companies have yet to prioritize programs or address onboarding in a way that truly works for IT roles. The TEKsystems survey found that only 12% of IT leaders and 13% of IT professionals rated their onboarding programs as extremely effective.

Why the big disconnect? Russell says most onboarding initiatives focus on general HR policies and administrative paperwork at the expense of covering the resources that IT employees need to be successful. "It has to be more than 'Here's where the bathrooms are' or 'Here's our work-at-home and vacation policies,'" Russell says. "Onboarding programs have to serve up components that provide background on the company and background on specific roles and workflows, and they must help facilitate relationship-building right from the get-go."

Of Interns and Onboarding

As good as IT-specific onboarding is, it can sometimes fall through the cracks, concedes Robert Krestakos, CIO at Steelcase, a provider of office products, furnishings and services. "There's a tendency for the IT group to defer to HR and think about it as an HR problem," he says. "Certainly, HR has to be close to the IT function to really understand the kind of talent needed and the culture that IT is working in, but if [onboarding] is viewed as a clerical or administrative process, then it doesn't fire on all cylinders."

While Steelcase has a formal HR onboarding program, but not one specific to IT, Krestakos says his department has initiatives in place to guard against turnover and to immerse technology employees in the company's strategic objectives and culture. An IT internship program, coordinated at the corporate level, exposes participants to company leaders, acquaints them with

Discussion Underway

(want in?)

The Computerworld LinkedIn Forum
is a community for all things IT:
news, analysis and discussion about
topics within IT, including careers,
management and hot topics.
If you are an enterprise IT practitioner
at any level we'd love to have you join.

Apply for membership today at
www.computerworld.com/linkedin

COMPUTERWORLD
on **Linked in**

all aspects of the business and includes real work assignments, Krestakos explains. As part of this program, Steelcase recruits anywhere from 10 to 15 IT interns each summer, and hires two or three permanently, he says.

Another piece of Steelcase's de facto IT onboarding strategy is to send certain new employees off to work at another location, potentially overseas, to give them a global picture of Steelcase. Depending on their role and which business experts they'll be working with, employees participate in anything from a two-week trip to a six-month assignment.

"We've learned that it's a more effective way to get people up to speed faster and it's got the added benefit of being viewed positively by employees," Krestakos explains. "It helps them understand our architecture, the processes we work to, and it helps in relationship-building."

International Rotations Are Key

At International Paper (IP), job rotations are a major part of the onboarding plan for IT-bound college recruits, according to Jeffrey Mayhew, the company's program manager for global HR transformation. Above and beyond the generic corporate onboarding program that covers basic company ethics and corporate vision, recent graduates who are hired for IT positions are funneled through a three-year program in which they participate in two to three rotations where, optimally, they gain equal exposure to IP's information management, process management and business management strategies.

"The idea is to give individuals broad exposure to all functions of IT to see how it's interconnected and to set them up to be a future leader in the organization," Mayhew says. IP also makes sure the new recruits (usually between 10 and 20 people) bond with one another. He organizes social activities like sports events and group community service projects to foster a sense of team unity. "In today's challenging world of recruitment, it's important that we keep people once they come in the door and not turn them over again and again," Mayhew says.

Hunter Jones went through IP's rotational IT onboarding program right out of college in 2005, and he's been with the company ever since. After stints in IT operations, a business-facing group and the Rapid Application Development Services team, Jones took an IT business information manager position in IP's Industrial Packaging group in Memphis.

The flexibility of the program helped him figure out exactly what role he wanted to play in IT, says Jones, who believes the team-building activities that encourage camaraderie and relationship-building are key to IP employees' overall job satisfaction. "Building community is very important from the standpoint of retention," he says. "People are much more likely to stay if there's a network of people who care about them and are interested in their development."

A Peek at Back-end Operations

Manjit Singh is also a proponent of onboarding as the gateway to job satisfaction. Singh, director of enterprise applications at Hexaware Technologies, has been with the global provider of IT and process services for three years and participated in the company's onboarding program, which included a two-week trip to India to work with the IT staff handling day-to-day operations. The idea behind the trip was to give U.S. employees a feel for Hexaware's back-end operations so they could better understand and anticipate customer pain points and requirements, Singh says.

In addition, the time spent with the overseas group helped foster personal relationships, which, in turn, bolstered productivity. "With 10,000 employees, it's difficult to keep in touch over the phone or relate to people helping you out on a project," he explains. "By meeting them firsthand, you can pick up the phone and call someone you know. It ensures a quick turnaround as opposed to getting lost in the corporate bureaucracy."

Another key aspect of Hexaware's onboarding program, according to Singh, is its buddy system, through which each new hire is assigned a buddy — a seasoned employee with a similar job function who helps acclimate the new employee both on the job and off. Buddies might steer new hires to the resources they need to do their jobs, or perhaps help them find schools for their kids if they've relocated from another area.

These programs helped Singh develop a sense of commitment to Hexaware, something he didn't have for his prior employer, which had no onboarding program. "There, we were thrown into the fire without any support, so you didn't feel like you were part of the company," says Singh, who spent less than a year in that job. "If a person isn't comfortable, they won't stick around for a long time. Onboarding helps make that connection." ◆

Stackpole, *a frequent* Computerworld *contributor, has reported on business and technology for more than 20 years.*

IT Onboarding Checklist

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]

INFRASTRUCTURE PERFORMANCE MANAGEMENT: Why IPM is the Next Game Changer for IT

YOUR BUSINESS LIVES AND DIES BY THE PERFORMANCE OF YOUR IT INFRASTRUCTURE. That's a bold statement to make, but it's true. Today key business processes live online in data centers and customers as well as employees expect access to applications at any time, from any device. Supporting this "new normal" state requires a world of unending scale with more resource heterogeneity, more virtualization and more cloud computing to increase flexibility, scalability and agility.

To meet many of their challenges, IT leaders are trying to maximize their resources by managing a perpetual cycle of consolidation, migration and transformation. In the midst of all this movement, the business operations depending on these IT infrastructures face very real risks. More and more, IT leaders are realizing that they need an end-to-end view of their infrastructure—across physical, virtual and cloud environments—so that it's easier to troubleshoot issues and optimize for top-flight performance.

How to achieve this? IT executives are finding the answer in infrastructure performance management (IPM) solutions, which provide visibility into the performance, availability and overall health of the end-to-end system. Proof that IT is moving in the direction of IPM comes from a recent IDG Research Services survey of 152 IT executives at U.S. companies with 5,000 or more employees in a variety of industries: 80 percent of the respondents said they place a high or critical priority on IPM, and two-thirds plan to increase the level of investment in IPM solutions over the next year.

Among the respondents, 63 percent reported that the transition to virtualization and the cloud is driving investments in IPM solutions. Almost as many cited a desire to reduce costs (61 percent) and decrease infrastructure slowdowns and performance issues (59 percent). They're realizing, or have reason to expect, transformative benefits: More than 60 percent cited improved system efficiencies or a reduction in downtime or slow performance, and more than 50 percent in each case claimed improved infrastructure response times, higher visibility into infrastructure performance and improved customer service.

BUILD A TEAM TO LEAD THE WAY

IT leaders are discovering that they also must align their staff to gain the greatest advantage from the insights provided by IPM solutions. Close to 80 percent of the survey respondents reported that they had established a team dedicated to managing IT infrastructure performance. Respondents with an established IPM team are significantly more likely than those without one to report they've achieved, or expect to achieve, improved infrastructure response times (61 percent versus 41 percent, respectively).

> The survey reveals that companies with IPM teams are able to identify infrastructure problems almost twice as quickly, remediate infrastructure problems three times as quickly and proactively mitigate risks three times as efficiently as organizations without teams. They also experience a more than eightfold improvement in business agility.

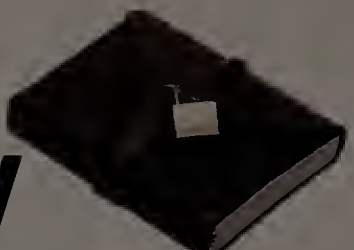
What benefits do IPM teams bring? Organizations with an established IPM team are significantly more likely to see improvements in the performance of their infrastructure. The survey reveals that companies with IPM teams are able to identify infrastructure problems almost twice as quickly, remediate infrastructure problems three times as quickly and proactively mitigate risks three times as efficiently as organizations without teams. They also experience a more than eightfold improvement in business agility.

The business benefits of IPM mean that CIOs everywhere must pay closer attention to this emerging technology and see that its adoption in their enterprise is managed with the aid of a strong and diversely skilled team. Companies already leveraging IPM see the quantifiable difference it's making. Isn't it time you put it to work as a game changer for your business too?

Learn more about IPM and read the whitepaper with full survey results by visiting Virtual Instruments at **www.virtualinstruments.com/ipm-survey-results**

COMPUTERWORLD
Custom Solutions Group

VIRTUAL
INSTRUMENTS



Security Manager's Journal

MATHIAS THURMAN

Ins and Outs of Extending DLP

Data leak prevention has paid off, but 40% of the company's global workforce remains uncovered.

Trouble Ticket

» [illegible] The company's DLP deployment is currently restricted to three big offices.

» [illegible] Study the options for getting cost-effective coverage to the 50 smaller offices located around the world.

I **LOVE DLP!** That's not a statement that would sell a chief financial officer on data leak prevention, but I can show real ROI from our deployment as well.

Our recent discovery of problems with our email security settings is only the latest example of our DLP investment paying off. Since we deployed network DLP last year, we've identified both inadvertent and deliberate disclosures of sensitive data. DLP alerts have led to employee terminations and legal action. Some of the incidents involve downright criminal activity.

[illegible] the discussions about security! **computerworld.com/blogs/security**

Now I want to extend DLP's reach. Our current deployment is limited to our three main offices: one in the U.S., one in Europe and one in Asia. But 40% of our workforce is located in roughly 50 smaller offices around the world. Ideally, we would have architected the network so that all Internet traffic would be routed to regional hub sites via backhauling of the MPLS traffic. That would allow us to monitor network traffic for all of our remote offices with just three or four sensors. Instead, each remote office uses its own Internet service provider.

That being the case, we have two options for monitoring outbound Internet traffic for the enterprise. The first is to install DLP network sensors at each office (or alternatively, to provision virtual servers at all of our remote offices). The problem with this approach is that it provides no visibility into what users do once they take their laptops off the network.

Endpoint DLP, the second option, addresses that particular problem, and for the past few months we've been running a proof of concept to test its effectiveness.

The concept is appealing. We can install a lightweight agent on every PC via group policy or our regular software distribution and — voila — complete coverage for the enterprise. In reality, though, we've found that endpoint DLP falls short of network DLP.

Under the Hood

To help you understand the problem, let me explain a bit about how DLP works. DLP relies on both content matching and index matching. Content matching detects things like keywords, Social Security numbers, credit card numbers and other easily identifiable terms. It's quite simple, and even many firewall, email gateway and other proxy vendors offer similar functionality. Index matching goes much deeper and, in my opinion, provides the real value you get from enterprise DLP technology.

And this is how index matching works: When a document that has been identified as needing protection is checked in to the DLP infrastructure, complex computations are conducted on it. Afterward, if even a snippet of the document is leaked, the DLP infrastructure will recognize the snippet as part of a previously identified document. If just a few lines of source code are entered into an email message and sent out of network, the DLP index matching technology will identify it as protected even if the original document that was registered in the system contained 10,000 lines of source code.

All of this works seamlessly with network DLP, but when you try to do the same thing with endpoint DLP, you come up against performance and scalability issues. That's because the agents installed on each PC have to communicate with a central server to determine whether the data is part of a checked-in document.

This will all be resolved in future releases, the endpoint DLP vendor assures us. That doesn't help us now, though, so we'll either have to deploy network sensors at all of our remote offices or accept the decreased functionality that we'll get with endpoint DLP. ◆

This week's journal is written by a real security manager, **"Mathias Thurman,"** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

> **"We have two options for monitoring outbound Internet traffic: network DLP and endpoint DLP.**

dtSearch®

The Smart Choice for Text Retrieval® since 1991

Instantly Search Terabytes of Text

25+ fielded and full-text search types

dtSearch's **own document filters** support "Office," PDF, HTML, XML, ZIP, emails (with nested attachments), and many other file types

Supports databases as well as static and dynamic websites

Highlights hits in all of the above

APIs for .NET, Java, C++, SQL, etc.

64-bit and 32-bit; Win and Linux

Ask about fully-functional evaluations

www.dtSearch.com 1-800-IT-FINDS

"lightning fast"
Redmond Magazine

"covers all data sources"
eWeek

"results in less than a second"
InfoWorld

hundreds more reviews and developer case studies at www.dtsearch.com

dtSearch products:
Desktop with Spider
Network with Spider
Publish (portable media)
Web with Spider
Engine for Win & .NET
Engine for Linux
Document filters also available for separate licensing

Personalized IT newsletters from Tech Dispenser.

You pick the topics.
You pick the sources.
You pick the frequency.

Build your own newsletter featuring your favorite technology topics — cloud computing, application development, security — over 200 timely topics, from more than 700 trusted sources.

Get started today. It's free.
www.techdispenser.com

TECH DISPENSER

BE INFORMED ABOUT ENVIRONMENTAL ISSUES IN YOUR SERVER ROOM
...EVEN WHEN YOU'RE SLEEPING

ONLY SENSAPHONE PRODUCTS CAN CALL AND WAKE YOU WITH A CUSTOM VOICE MESSAGE DESCRIBING THE SPECIFIC PROBLEM WITH SENSOR DETAILS

MAKE SURE YOU GET THE MESSAGE

MONITOR:
- TEMPERATURE
- HUMIDITY
- WATER DETECTION
- POWER FAILURE & MORE

NOTIFICATION VIA:
- CUSTOM VOICE PHONE CALL
- EMAIL
- TEXT
- SNMP

SENSAPHONE®
REMOTE MONITORING SOLUTIONS

877-373-2700
www.sensaphone.com

MADE IN THE USA

PRESTON GRALLA

Why Ford's Alan Mulally Is Wrong for Microsoft

Microsoft's big problem is vision, and that's where Mulally falls short.

FORD PRESIDENT AND CEO ALAN MULALLY, a front-runner for the top slot at Microsoft, is a smart manager and a well-known turnaround artist — exactly the kind of person many believe would be ideal to take over as CEO. But Mulally is the wrong person for Microsoft.

Mulally certainly has plenty of pluses. He's an engineer who rose through the ranks at Boeing to become president and CEO of the Boeing Commercial Airplanes division. In 2006, he took over as CEO at struggling carmaker Ford, restructuring it and turning it around. Between the time he took over the company and the end of September of this year, Ford stock was up 103%.

He also appears to have the "soft skills" that have been sometimes lacking at Microsoft. Forrester Research analyst David Johnson told *Computerworld*: "Mulally has a long track record of building company cultures with a positive outlook and trust, infusing the organization with confidence and energy. He's seen as a cheerleader and advocate for employees — an essential quality for turnarounds."

So what's not to like?

Plenty, at least for the leadership of Microsoft.

The biggest problem is that Mulally is the wrong kind of engineer. He has bachelor's and master's degrees in aeronautical and astronautical engineering. That's a big achievement, and obviously ideal for Boeing and pertinent to a certain extent for Ford. But for Microsoft? Not at all. What software experience does he have? Not much. What is his track record in dealing with the twin challenges of heading a company that is both consumer-oriented and IT-focused? He has none. How will his aeronautical engineering background help him in the challenges Microsoft faces in mobile technology, productivity suites, cloud-based computing, Internet search and more? It won't.

Mulally has shown at Boeing and Ford that he's an excellent manager. But that hasn't been Microsoft's problem. For all of Steve Ballmer's faults, he did reasonably well rated strictly as a manager. He's got an MBA from Stanford, and he used that management expertise well. Costs aren't out of control. The company has a top-notch sales staff. Profit margins are high. From a purely managerial perspective, the company is in good shape.

Microsoft's big problem is vision, and that's where Mulally falls short. He has no experience in developing the kinds of products that Microsoft needs, no way of figuring a way out of the Windows 8 debacle, of guiding the development of a mobile operating system and a strategy that will help Microsoft gain serious market share. In a tech company, vision isn't something you can delegate to underlings. You have to have it yourself. That's why Ballmer's leadership was less than stellar.

Mulally has some experience in developing consumer technology with Microsoft, and it didn't go well. Under his leadership, Ford and Microsoft developed the MyFord Touch infotainment interface for Ford cars. David Champion, head of auto testing for *Consumer Reports* magazine, told CNN that the system has had many problems, including computer crashes. A class-action suit has been filed against Ford in California over defects in the system.

Mulally has clearly been an excellent leader at both Boeing and Ford. But he wouldn't be one at Microsoft. He's the wrong person for the job. ◆

• • •

Preston Gralla is a *Computerworld.com* contributing editor and the author of more than 35 books, including *How the Internet Works* (Que, 2006).

Scot Finnie also wonders about Microsoft's future. **Page 44**

Career Watch

ASK A PREMIER 100 IT LEADER

Thaddeus Arroyo

The AT&T CIO answers questions about **IT gaining influence in the business** *and more.*

I think IT should be more influential in the business, but I don't know how to do that. Any ideas? Innovation and technology go hand in hand, and innovation is essential to business growth. So to me, driving high-value innovation starts with a business-aligned technology focus. Operating at the center of their companies, IT organizations are often in an ideal position, with tremendous visibility into every line of business and every operating unit. This positions IT professionals to be influential partners who can recognize capabilities and who have keen insight into new ways to improve the customer experience and enhance or drive innovative market offerings. Utilize your unique set of capabilities, perspective and vision into the art of the possible to advance business-aligned innovation.

I have always been considered a natural leader, going back to my earliest school days. I'm in IT now, and pretty green. What technologies and other skills should I concentrate on to move toward a leadership role as my career progresses? I was very fortunate early in my career to take on multiple technology and business leadership roles that exposed me to growth-oriented, innovative and transformative opportunities. These experiences equipped me with a broad perspective across many technology and business operation disciplines and also took me in the right direction in terms of requisite skills development.

If you aspire to a leadership role, I encourage you to take risks and step into uncomfortable positions, since those are the ones that produce the greatest growth and rewards. Move into roles that require you to stretch your knowledge and skills. Learn from both good and bad decisions and experiences, since these are valuable teaching opportunities. Take time to invest in your personal and professional growth. Stay current on technological trends and innovation in your industry. You may not see the results immediately, but personal development and direct experience ultimately determine the individuals that we become.

What are employers looking for in technical professionals these days? What specific skills, degrees and certifications are in most demand? Degrees in science, technology, engineering and mathematics are in high demand. When it comes to specific skills, business acumen is rising in importance, as the line between technology and business continues to blur.

But just as important for the next generation will be the skills to assemble services (versus building new services from the ground up) in relevant domains of the future, including cloud computing, cybersecurity, big data, adaptive application design, mobile computing and iterative software development.

Those who know how to utilize consumable "as a service" technologies to quickly assemble, iterate on, expand and combine in ways that enhance market offerings or transform business processes will ultimately enjoy great demand. Along the way, many traditional IT roles like "software architect" and "IT analyst" will transform into roles like "cloud integration specialist" and "information insight enabler."

If you have a question for one of our Premier 100 IT Leaders, send it to **askaleader@computerworld.com,** and watch for this column each month.

AGREE OR DISAGREE:
'My Boss Has Pointy Hair'

Do IT professionals think they're smarter and more creative than their bosses? These results from a TEKsystems suggest that that's the case:

I have good to excellent intelligence	90%
My boss has good to excellent intelligence	63%
I have good to excellent creative abilities	98%
My boss has good to excellent creative abilities	69%

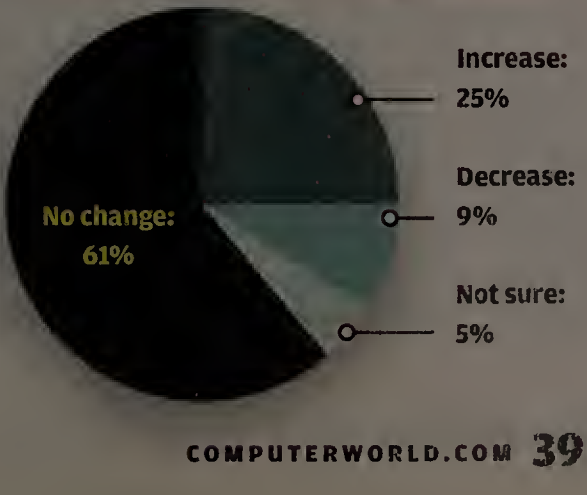
The same survey found that IT professionals most want to have a boss who can set goals and provide clear direction and expectations, but they tend to perceive their current bosses as cheerleaders devoted to maintaining a positive outlook at all times.

SOURCE: TEKSYSTEMS SURVEY OF OVER 900 IT PROFESSIONALS, OCTOBER 2013

STEADY AS SHE GOES

» CareerBuilder, which asks employers about their hiring plans every quarter, found their expectations to be pretty much unchanged in the fourth quarter compared to the third. Ranked by size, companies with more than 500 employees are most likely to expect to do hiring.

In the fourth quarter, does your company plan to increase, decrease or make no change to the number of its full-time, permanent employees?



Intel Media, Inc. has opening(s) in Santa Clara, CA. Combination ed/exp accepted in some positions in lieu of degree. To apply, email resume to SantaClara_jobs@intel.com and reference the job # below. Apply to each job # of interest. Applications will be accepted through 12/05/13. EOE
Business Analyst - Conduct business process analysis as project manager or as part of large project team. Plan and execute User Acceptance Testing by creating test scripts and coordinate testing efforts with end users. Requires BS+5 yrs exp OR MS+3 yrs exp (#718860); or MS+3 yrs exp (#719745).

Intel Corporation has opening(s) in Santa Clara, CA. Combination ed/exp accepted in some positions in lieu of degree. To apply, email resume to SantaClara_jobs@intel.com and reference the job # below. Apply to each job # of interest. Applications will be accepted through 12/05/13. EOE
Market Research Analyst-Apply structured market research design, such as problem statement, research objective, sample frame, methodology, analysis planning, data processing, analysis and deliverables, to develop and implement analytical solutions. Requires BS+5 yrs exp OR MS+3 yrs exp (#718886).

Intel Americas, Inc. has opening(s) in San Francisco, CA. Combination ed/exp accepted in some positions in lieu of degree. To apply, email resume to SanFrancisco_jobs@intel.com and reference the job # below. Apply to each job # of interest. Applications will be accepted through 12/05/13. EOE
Tech Writer and Developer Community Manager - Write accurate, concise, useable, highly polished, product documentation, demos, and other material for self and live training. Requires BS+5 yrs exp OR MS+1 yr exp (#718854).

Intel Americas, Inc. has opening(s) in San Francisco, CA. Combination ed/exp accepted in some positions in lieu of degree. To apply, email resume to SanFrancisco_jobs@intel.com and reference the job # below. Apply to each job # of interest. Applications will be accepted through 12/05/13. EOE
Business Analyst - Conduct business process analysis as project manager or as part of large project team. Plan and execute User Acceptance Testing by creating test scripts and coordinate testing efforts with end users. Requires MBA (#718850)

Attention Law Firms, IT Consultants, Staffing Agencies...
Are you frequently placing legal or immigration advertisements?

Place your Labor Certification Ads Here!

Let us help you put together a cost-effective program that will make this time-consuming task a little easier.

Contact Enku Gubaie at 800.762.2977

Looking for a challenging IT Career, shouldn't be such a challenge.

Check back with us weekly for fresh listings placed by top companies looking for skilled professionals like you!

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: D. Racherla. Please reference job # below:

Software Engineer Position (Seattle, WA) **#1615.2929** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: prob & perf analysis of large scale distrib syst; design of fault tolerance & recovery methods; Java; Jscript; C++; & Unix.

Software Engineer Positions (Kirkland, WA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:

#1615.7152: coding in Python, Java, C++, HTML, Jscript, & AJAX; UNIX & Linux; internet tech; & test tech.

#1615.1130 syst design; pltfrm integration; UX design; ntwrk protocols; encryption & security; internationalization; & remote access.

Direct Energy has an opening for a Senior Analyst, Upstream and Trading in Houston, TX to design, develop and implement system solutions that address needs of both market risk and credit risk areas to capture, analyze, monitor and control risk of trading activities. Requires a Master's degree or equivalent in Computer Science, Management Information Systems, Mathematics or Engineering and three years progressive experience developing applications using Microsoft C# programming language, performing database development and analysis using SQL/PLSQL and RDBMS (MS SQL Server 2005 or higher, Oracle 10g or higher), building risk reporting and analytics tools using Microsoft Excel and VBA programing. Employer will also accept Bachelor's degree or equivalent in Computer Science, Management Information Systems, Mathematics or Engineering and five years progressive experience as listed above. Apply online at http://www.directyourenergy.com/. Must reference Job #DEU0000006E.

Software Engineer (Richmond, VA) Design pension mgmt IT proj. Require Master or equiv degrees in Csi or Computer applications & 2 yrs enterprise-level SW Engineer exp. Exp should include MS.Net,C#,T-SQL,XML,Visual Studio,Web Services, SOAP/WSDL, Entrust Server. Send salary reqlt & resume to: HR, Sagitec Solutions, 422 County Rd D East, Little Canada, MN 55117.

Sr. Software Engineer: Dsgn, dvlp, coordinate & implement adv s/w module components in complex computing environments using latest tools & technologies. Anlyz user needs & dvlp s/w solutions. Dsgn & customize s/w as per the requirement. Sr. Programmer Analyst: Dsgn, dvlp, plan, coordinate & implement adv s/w module components in complex computing environments. Dvlp & direct s/w sys testing & validation procedures. Evaluate organization's technology use & recommend improvements in h/w & s/w. Programmer Analyst: Dsgn, dvlp, test, create & modify comp applications s/w & specialized utility programs. Anlyz user needs, align with data gathered & dvlp solutions. Use latest technologies & tools in a web based environment. Jr. Programmer: Dsgn, test, create & modify comp applications. Anlyz user needs & dvlp solutions. Manage backup. Must be willing to travel & relocate for short periods of time as needed for all above position. Apply w/2 copies of resume to HR, Xpedite Technologies, Inc. 8830 Stanford Blvd, Ste # 415, Columbia, MD 21045

Capgemini Financial Services (Rosemont, IL), seeking experienced professional consultants with market-critical IT software development skills in financial services domain. Multiple positions available in the following job titles: Principals (Ref#Q3-13D, Managers (Ref#Q3-13A), Lead Consultants (Ref#Q3-13B) and Sr. Consultants (Ref#Q3-13C). All consulting positions require willingness to travel or temporarily relocate to projects at various unanticipated locations throughout the U.S. Some positions may allow for temporary telecommuting or other flexible working/living arrangements. All consulting positions are based out of our Rosemont, IL headquarters; worksite locations are varied, unanticipated and subject to change. Send resume to Resumeshr.fsgbu@capgemini.com and indicate Ref# in subject heading of email. No calls. EOE

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 attn: K. Moultrie. Please reference job # below:

Software Engineer Positions (Venice, CA) ; Design, develop, modify, and/or test software needed for various Google projects. Exp incl:

#1615.6889 OO Jscript dvlpmnt & design; AJAX, HTML, CSS, & Flash; design, implement, inspect, debug, test, & analysis of ad srvrs; C, C++, Python, & SQL; database design; mathematical stats & scientific visualization; parallel & distrib compute; & data struct & algorithms.

#1615.1634 large scale syst design; C, C++, Java, or Python; dvlpmnt, test, & enhancement of prod & syst utilities; data struct, algorithms, & sw design; database design, SQL, TCP/IP, & ntwrk prog; & HTML standards.

Consulting Mgr. Job location: Miami, FL & any other unanticipated locations in the U.S. Travel Required. Duties: Resp. for implementing software systems for clients involving end to end software develop. life cycle. Design & develop software appls. using Oracle Hyperion Planning, Oracle Hyperion Essbase, Oracle Hyperion DRM, Oracle Hyperion Smartview, Oracle Hyperion spreadsheet Add-in, VBA. Resp. for project estimation, risk mitigation, reporting, managing testing cycles, cut-over processes, & training sessions for software implem. Requires: M.S. degree in Comp. Sci., Eng. or related field & 3 yrs. exp. in the job offered or 3 yrs. exp. as an Analyst, Consultant or Software Eng. Will accept B.S. (or foreign equiv.) & 5 yrs. exp. in the computer ind. in lieu of M.S. & 3 yrs. exp. Concurrent exp. must incl.: 3 yrs. exp. designing & developing software appls. using Oracle Hyperion Planning & 3 yrs. exp. using Oracle Hyperion Essbase. Send resume (no calls) to: Michelle Ramirez, The Hackett Group, Inc., 1001 Brickell Bay Dr., Suite 3000, Miami, FL 33131.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 attn: K. Moultrie. Please reference job # below:

Software Engineer Positions (NY, NY) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:

#1615.6246 Linux; srvr side dvlpmnt; database dvlpmnt; RESTbased web srvcs; design, implement, test, & maint of modular sw components; comp security; & Java.

#1615.4581 Java Core; Jscript, C++, or Python; theory of compilers & lang design; OOP design & implement principles; script lang; test frmwrks & mocking frmwrks; version control sys; con't integration syst; mgmnt & implement SDLC; design & debug multithread solutions; & in-memory grid data syst.

Waste Management Corporate Services, Inc. seeks Sr. SQL Database Administrators (DBAs) to assist team of SQL Server DBAs and Developers in leading technology challenges and the support of high number of production and lower lifecycle instances, archiving data, auditing, application integration and development, backup and recovery, capacity planning, change management, high availability, installing, configuring, patching and upgrading SQL Server software. Position requires Bachelor's degree in Computer Science, MIS, IT, or related field and 5 years of related experience. Must have SQL database administration experience, T-SQL programming and SSIS Windows OS and other relational database systems. Will accept combination of degrees and/or diplomas.

Job location: Windsor, CT. Apply online at www.wm.com.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: D. Racherla. Please reference job # below:

Site Reliability Engineer (Mountain View CA) **#1615.4547** Provide technical support necessary to ensure full availability of Google online services. Exp incl: app dvlpmnt & admin of UNIX or Linux syst; C++, Python, Java, & Shell; design & implement data struct & algorithms; design & implement distrib syst; design & implement syst admin appls manage large-scale syst; & tech troubleshoot & perf tuning.

Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:

#1615.7017 design & implement comp, ntwrk, or info security prod & srvcs; design & implement sw syst that perf id mgmnt, authentication, authorization, encryption & decryption, & digital sig creation & verify; design & implement sw syst based on public-key infrastruct; analysis of sw using cryptographic algorithms; & cryptography libraries in C++, Java, & /or Python.

#1615.5455 C++, Java, or Jscript; Unix; QA & testing; OOD; data struct & storage tech; data analysis; algorithm dvlpmnt & implement; multithread prog; & distrib &/or multi-tiered syst design & implement.

#1615.1051; C++; Java or C#; multi-thread prog; STL; algorithms; & data struct.

#1615.1840 C, C++, & Java; proj arch or tech leadership; algorithm design, data struct, & syst design; distrib comp, info retrieval, & data mining; dvlpmnt of multi-thread, robust, fault-tolerant, scalable srvr prog; & mgmnt of dplymnt issues w/web-scale apps inv thousands of srvrs & enterprise apps inv large data centers.

#1615.229 fault tolerant syst; parallel process of data sets; UNIX &/or Linux; internet protocols; C++; web apps& server architecture; & dvlpmnt, operation, & support of a multi-server sw app, providing highly avail srvc to multiple users.

#1615.3788 op syst & compilers; distrib & parallel prog; databases; frontend web script lang; & comp ntwrkng & security.

#1615.3356 C, C++, Java, Python, Jscript, or AJAX; Unix or Linux; data struct, algorithms, & sw design; & TCP/IP or ntwrk prog.

BlackBerry Corporation, San Diego, CA, positions are available:

CA7079 - Technical Lead

BlackBerry Corporation, Cary, NC, positions are available:

NC7080 - Software Developer

Submit resume to BlackBerry Corporation, P.O. Box 141394, Irving, TX, 75014-1394 U.S.A., referencing appropriate job title and requisition number.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: K. Moultrie. Please reference job # below:

Software Engineer in Test Positions (Mountain View, CA) Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:

#1615.5869: algorithms; C & C++; design, dvlpmnt, & test sw; syst prog; & multithread.

#1615.6438 app dvlpmnt lang, specifically C, C++, Objective-C, & Java; mobile apps for iOS pltfrm; iOS internals, XCode, & mobile ntwrkng; UI dvlpmnt frmwrks & UI perf test; & script lang.

#1615.7705; prog language; script lang; oper syst script commands; oper syst text editors; design, dvlpmnt, & testing of features in a distrib comp syst; design, implement, test, & maint of comp subsyst; & modification of existing code base.

Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:

#1615.6459 C or C++ w/STL; Java, Python & SQL; web prog, parallel & distrib compute, multithread or compilers; & design of algorithms for scale & efficiency.

#1615.4229 Python, Java, Jscript, HTML, & CSS; design, dvlpmnt & dplymnt of web tech; design, prog & maint of distrib syst; & design & implement of data pipelines & process syst.

#1615.6769 HTML; CSS; Jscript; Python; dvlpmnt of large-scale web apps; source control syst; & Linux.

#1615.4190 Linux, C, C++ & Python; distrib syst; databases & SQL; data struct & algorithms design; & debug

#1615.7527 Java, Python, & Jscript; dependency injection frmwrk; query & process large data; sw design & optimization; dvlpmnt, deploy, & maint of prod srvs; & distrib syst.

#1615.3394 C++; Java; AJAX; HTML; CSS; UI & UX design; perf eval & optimization in distrib syst; & knowledge of internet security.

#1615.613 dvlpmnt, test, & enhancement of prod &/or system utilities; design, implement, test, & maint of sw syst; actionscript; Java; Jscript; XML; HTML5; AJAX tech; & mobile app dvlpmnt.

#1615.4852 C++, Java, or Python; Unix; test automation; & dvlpmnt of test strategies, processes, & automation for large proj, incl perf, scalability, & integration test.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 attn: K. Moultrie. Please reference job # below:

Software Engineer Position (Cambridge, MA): Design. develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.1765** C, C++, & Java; data struct, algorithms, & complexity analysis; TCP/IP, UDP, Ethernet, & IP: dvlpmnt, optimization, debug high-perf, & multithread apps, oper syst internals; & microprocessor org & its relation to syst-level sw.

SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

POP!
ZAP!!
BIZZLE!
HM

HAL MAYFORTH

But We Knew That

It's back in the heyday of Unix servers when this pilot fish's boss tells him he wants more memory to speed up the system – and pronto. "RAM board arrives with a phone number to call the vendor's tech," says fish. "I call the tech, but the boss tells me to do it myself. 'The memory board is just like PC memory, only larger,' he says. 'Just pop it in that slot the way it's described on the attached paper.' I say that I'm not qualified to do this. My boss says, 'Step aside and I'll train you.' Boss takes over and struggles, but finally pops the memory into place. Powering up the server goes along just fine – for about 10 seconds. Then we hear a popping noise, then sparks and smoke appear, and I quickly shut off the power. Ten hours and a new motherboard later, as the vendor tech is leaving and my boss is nowhere to be found, the tech hands me the burnt memory and motherboards – and points out the break that occurred when the boss 'popped' the memory into place. Apparently the boss was not qualified either."

It's All a Matter of How You Look at It

This user in a government agency is the guinea pig for a new Citrix system, and the Level 3 support pilot fish responsible for the project isn't getting any help from levels 1 and 2. "The user calls to say she isn't receiving any of her documents from the scanner," reports fish. "Level 1 notes that the user is on the new system and passes it to Level 2. Level 2 runs a few tests and says the email is reaching the user's inbox, just not in Outlook in the user's session, and tells me they can't solve the issue." If the mail is in there, why can't the user find it? Fish shadows the user's session and asks her to show him what she sees. Sure enough, there are no emails for today showing on the screen. Fish expands the "Today" group in Outlook. User says, "There they are!" Sighs fish, "How busy am I going to be when this system is rolled out to 3,000 people?"

Completely Undisturbed

This professional firm has a satellite office in another state, and the cable Internet connection does go out occasionally – but not as often as some users think. "It's late afternoon and we get a call: Everyone that calls this office is getting a fast busy signal," reports a pilot fish at headquarters. "We ping the office. Server is up and pingable. We can remote to the server. Lots of head-scratching – why are the IP phones not working? Lots more head-scratching. Then we call the office. It seems somebody thought it would be prudent to put all the phones on 'do not disturb' for a videoconference – and then forgot to turn it off."

» **Disturb Sharky anytime** with your true tale of IT life at sharky@computerworld.com. You'll get a stylish Shark shirt if I use it.

CHECK OUT Sharky's blog, browse the Sharkives and sign up for home delivery at **computerworld.com/sharky**.

ADVERTISERS INDEX

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

1&1 Internet	19
APC by Schneider Electric	C3
BMC Software	13
CenturyLink	5
Cisco	7
Dell/SonicWALL	29
dtSearch	37
Hewlett-Packard	C1, C2
IBM Intel	C4
InterSystems	3
NTT Data	9
Sensaphone	37
Unify formerly Siemens Enterprise Communications	14
Verizon	21-24
Virtual Instruments	35s
VMware	11

BPA Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement PM40063731. **CANADIAN POSTMASTER:** Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9. Computerworld (ISSN 0010-4841) is published twice monthly except for the month of July by Computerworld Inc., 492 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171.

Copyright 2011 by Computerworld Inc. All rights reserved.

Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 500 copies) and permission to reprint may be purchased from The YGS Group, (800) 290-5460, Ext. 100. Email: computerworld@theygsgroup.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy; Annual subscription rates: – $129; Canada – $129; Central & So. America – $250; Europe – $295, all other countries – $295; digital subscription – $29. Subscriptions call toll-free (888) 559-7327. **POSTMASTER:** Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, IL 60065-3500.

Sales Offices

Vice President/Publisher
CIO, Computerworld, CITEworld
Adam Dennison
adam_dennison@computerworld.com
(508) 935-4087

Vice President/Digital
Jennell Dill
jenell_dill@computerworld.com
(415) 978-3309

NORTHWESTERN STATES AND NORTHERN CALIFORNIA

Account Director, Integrated Sales
Tana Johnson (415) 531-1293

Account Director, Digital
Lisa Otero (415) 978-3310

Account Coordinator
Alanna Grant (415) 978-3302

Mailing Address
501 Second Street, Suite 114,
San Francisco, CA 94107
Fax (415) 543-8010

WESTERN AND SOUTHWESTERN STATES

Account Director, Integrated Sales
Mark Stevens (415) 531-7582

Account Director, Digital
Tia Denny (415) 978-3316

Account Coordinator
Amy Peterson (415) 978-3306

Mailing Address
501 Second Street, Suite 114,
San Francisco, CA 94107
Fax (415) 543-8010

NEW ENGLAND, SOUTHERN AND CENTRAL STATES

Account Director, Integrated Sales
Jeff Gallagher (508) 820-8133

Account Director, Digital
Matt Wintringham (508) 820-8218

Account Coordinator
Susan Thaxter (508) 271-7108

Mailing Address
P.O. Box 9171, 492 Old Connecticut
Path, Framingham, MA 01701
Fax (508) 270-3882

EASTERN AND SOUTHEASTERN STATES

Senior Account Director, Integrated Sales
Hal Mentlik (631) 696-4498

Account Director, Digital
Tim Keough (508) 766-5475

Account Coordinator
Jessica Frary (508) 766-5446

Mailing Address
P.O. Box 9171, 492 Old Connecticut
Path, Framingham, MA 01701
Fax (508) 270-3882

COMPUTERWORLD

HEADQUARTERS
492 Old Connecticut Path
P.O. Box 9171
Framingham, MA
01701-9171
(508) 879-0700
Fax (508) 875-4394

President & CEO
Michael Friedenberg

Executive Assistant to the President/CEO
Pamela Carlson

Senior Vice President/Human Resources
Patricia Chisholm

Senior Vice President/Events
Ellen Daly

Senior Vice President/Chief Content Officer
John Gallant

Senior Vice President/Digital
Brian Glynn

Senior Vice President/Strategic Programs and Custom Solutions Group
Charles Lee

Senior Vice President/Group Publisher and CMO
Bob Melk

Senior Vice President/General Manager, Online Operations
Gregg Pinsky

Senior Vice President/DEMO
Neal Silverman

Senior Vice President/COO
Matthew Smith

Senior Vice President/General Manager, CIO Executive Council
Pam Stenson

Senior Vice President/Digital and Publisher
Sean Weglage

IDG

International Data Group
Chairman of the Board
Patrick J. McGovern

Computerworld is a business unit of IDG, the world's leading technology media, research and events company. IDG publishes more than 300 magazines and newspapers and offers online users the largest network of technology-specific sites around the world through IDG.net (www.idg.net), which comprises more than 330 targeted websites in 80 countries. IDG is also a leading producer of 168 computer-related events worldwide, and IDG's research company, IDC, provides global market intelligence and advice through 51 offices in 43 countries. Company information is available at www.idg.com.

LEGAL NOTICE
U.S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT and CIRCULATION
(Required by 39 U.S.C. 3685)

1. Title of Publication: Computerworld
2. Publication No.:0010-4841
3. Date of filing: October 3, 2013
4. Frequency of issue: Twice Monthly except 1 issue in January & July
5. Number of issues published annually: 22
6. Annual subscription price: $129.00
7. Location of known office of publication: 492 Old Connecticut Path, PO Box 9171, Framingham, MA 01701-9171 (Middlesex-Central County).
8. Location of the headquarters of general business offices of the publishers: Computerworld, 492 Old Connecticut Path, PO Box 9171, Framingham, MA 01701-9171 (Middlesex-Central County).
9. Names and addresses of the publisher, editor and managing editor: Senior Vice President/Group Publisher, Bob Melk, 492 Old Connecticut Path, Framingham, MA 01701-9171. Editor-in-Chief, Scot Finnie, 492 Old Connecticut Path, Framingham, MA 01701-9171. Managing Editors, Johanna Ambrosio (Technologies), Sharon Machlis (Online), Ken Mingis (News) &, Bob Rawson, (Production), 492 Old Connecticut Path, Framingham, MA 01701-9171
10. Owner: International Data Group, 1 Exeter Plaza, Boston, MA 02116-2851.
11. Known bondholders, mortgages and other security holders owning or holding 1% or more of total amount of bonds, mortgages or other securities: International Data Group, 1 Exeter Plaza, Boston, MA 02116-2851. None
12. For completion by nonprofit organizations authorized to mail at special rates: Not applicable.
13. Publication Name: Computerworld
14. Issue date for circulation data below: September 23, 2013.
15. Extent and nature of circulation:

	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total number of copies printed (net press run)	153,152	152,686
B. Legitimate paid and/or requested distribution (by mail and outside the mail)		
1. Outside county Paid/Requested mail subscriptions stated on PS Form 3541	151,585	151,470
2. In-county paid/requested mail subscriptions stated on PS Form 3541	0	0
3. Sales through dealers and carriers, street vendors, counter sales, and other non-USPS paid distribution	348	298
4. Requested copies distributed by other mail classes through the USPS	0	0
C. Total paid and/or requested circulation	151,933	151,768
D. Nonrequested distribution (by mail and outside the mail)		
1. Outside county nonrequested copies stated on PS Form 3541	0	0
2. In-county nonrequested copies stated on PS Form 3541	0	0
3. Nonrequested copies distributed through the USPS by other classes of mail	0	0
4. Nonrequested copies distributed outside the mail	881	598
E. Total nonrequested distribution (Sum of 15d (1), (2), (3), and (4))	881	598
F. Total distribution (Sum of 15c and 15e)	152,814	152,366
G. Copies not distributed	0	0
H. Total (Sum of 15f and 15g)	152,814	152,366
I. Percent paid and/or requested circulation (15c/15f x 100)	99.4%	99.6%

I certify that the statements made by me above are correct and complete.

Diana Turco
Circulation Manager

OPINION

SCOT FINNIE

Can Microsoft Come Back?

> Microsoft's new CEO needs to create a culture that encourages employees to voice ideas.

MICROSOFT WAS BORN at the beginning of the PC revolution, which was all about empowering individuals through easy access to computing power. It emerged victorious.

Today, the mobile revolution is all about empowering a broad swath of businesspeople to work wherever and whenever they want and to smoothly interleave business and personal pursuits. No victory laurels for Microsoft this time. Why has it been unable to shift gears to take advantage of this second tech revolution?

Microsoft started out intensely focused on users. The antitrust prosecution of the late '90s was a turning point. By the time the company and the Justice Department reached a settlement in November 2001, a shift had occurred. Microsoft stopped listening to customers and began trying to dictate to the market. It became obsessed with anti-piracy protection, not caring that it was creating a negative user experience for some of its paying customers. The siege mentality with which Microsoft approached the trial began to permeate its dealings with customers and third parties.

Not surprisingly, dictating to the market didn't work. Windows ME, Windows Mobile, Tablet PC, Windows Phone, Zune, Windows Vista, Windows 8 and Surface Pro have all been failures in one way or another. The thing that has been lacking at Microsoft for about 15 years is vision. Its Zune music player arrived five years after the iPod. Its Surface Pro came some three years after the iPad. Microsoft began work on a mobile platform almost 15 years ago, so it wasn't late there. It just had no idea what the market wanted. And it has poured lots of good money after bad chasing Internet search business.

Most of that decade and a half has been the Steve Ballmer era. And Ballmer, who became CEO in 2000, was, for many people, the poster child of Microsoft's failures, exemplified by his decision in 2010 — the same year Apple launched the iPad — to pull the plug on the in-development Microsoft Courier tablet. Beginning with Pocket PC right on through Windows 8, Microsoft has failed time and again trying to get its mobile platform right. And mobile isn't the only area that Microsoft has had trouble with under Ballmer.

Perhaps the worst example of blurry vision was Windows 8. A one-size-fits-all OS for mobile and desktop devices was a colossally bad concept. The hallmark of Ballmer's tenure is that Microsoft has been tone-deaf to the market.

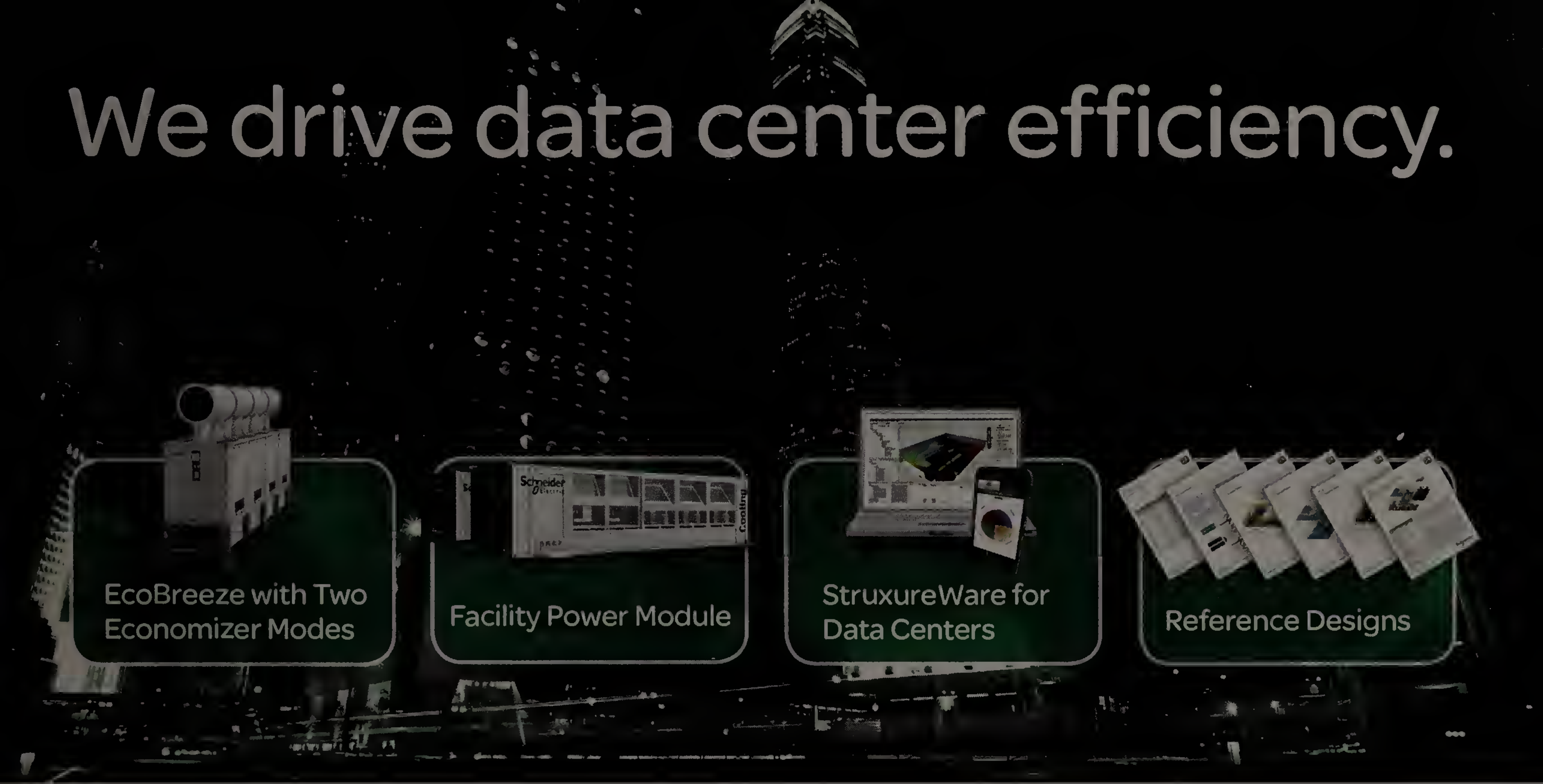
Ballmer's departure is long overdue. But things may get worse for the company before they get better. Microsoft needs to reset its institutional identity. It has always played hardball, but it used to be a much smarter company — one that listened to criticism and learned from it. One that was determined to innovate. To do that, you have to be willing to revise your products and take bold steps before your competitors lock things up. True innovation is usually a grass-roots effort. Microsoft's new CEO needs to create a culture that encourages employees to voice ideas.

With Ballmer leaving, Microsoft has an opportunity to remake itself, to refocus on core competencies and to re-evaluate its product road map. During Ballmer's era, server applications have been a high point, with products like SharePoint, Exchange and Azure, so perhaps Microsoft should focus there. But we live in a world where IT is turned on its head, where end users are dictating and IT is scrambling to deliver. Now, more than ever, Microsoft needs to succeed with consumers and business end users. ◆

• • •

Preston Gralla knows who *shouldn't* run Microsoft. **Page 38**

Scot Finnie is *Computerworld*'s editor in chief. You can contact him at sfinnie@computerworld.com and follow him on Twitter (@ScotFinnie).


We drive data center efficiency.
EcoBreeze with Two Economizer Modes
Facility Power Module
StruxureWare for Data Centers
Reference Designs

Our innovative data center physical infrastructure with full-visibility management lowers operating costs.

Rack-to-row-to-room-to-building architecture lowers cost.

Improving both efficiency and system uptime requires a second look at today's data centers! Featuring innovative and industry-leading physical infrastructure components, Schneider Electric™ data centers uniquely span traditional IT "white space" and facilities to improve interoperability, deliver true data center agility, and achieve cost-saving energy and operational efficiency. Our integrated architecture also lowers total cost of ownership, enables fast and easy design and deployment, and promises the highest availability.

It comprises best-of-breed components available from a single source and through a global supply and services chain. From our well-known APC InRow™ cooling units to our innovative EcoBreeze™ facility cooling module with two economizer modes to our unparalleled data center management software StruxureWare™ for Data Centers, Schneider Electric products can be found literally in every data center domain.

We offer the most energy-efficient components — all uniquely engineered as a system. In the long run, the Schneider Electric rack-to-row-to-room-to-building approach reduces total data center life cycle cost up to 13 percent and 30 percent of data center physical infrastructure cost over 10 years! In fact, it's the foundation of our Business-wise, Future-driven™ data centers.

APC™ by Schneider Electric

SQUARE D™ by Schneider Electric

> **EcoBreeze with Two Economizer Modes**
Only the scalable EcoBreeze automatically switches between air-to-air heat exchange and indirect evaporative cooling to maximize conditions year-round.

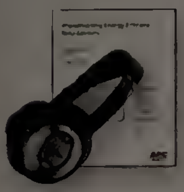
> **Data Center Facility Power Module**
Our modular, step-and-repeat approach to facility power lets you expand capacity in 500 kW increments as needed, cutting OpEx by up to 35 percent and CapEx from 10 to 20 percent.

> **StruxureWare for Data Centers**
With building-to-server visibility, StruxureWare for Data Centers enables you to make informed decisions about your physical infrastructure.

> **Reference Designs**
Our standardized architectures for various data center configurations, from 200 kW to 20 MW, reduce time, cost, complexity, and system risk.

> **Data Center Life Cycle Services**
Including energy management services, professional services from planning, build/retrofit, and operations help ensure highest system availability and efficiency.

Business-wise, Future-driven.



Is your data center efficient? Download our White Paper Efficiency Kit and register to WIN Bose® noise-cancelling headphones!

Visit: www.SEreply.com Key Code: e373u

Schneider Electric™

©2013 Schneider Electric. All Rights Reserved. Schneider Electric, APC, Square D, InRow, EcoBreeze, StruxureWare, and Business-wise, Future-driven are trademarks owned by Schneider Electric Industries SAS or its affiliated companies. All other trademarks are property of their respective owners. www.schnedier-electric.com • 998-1158241_GMA-US_Bose

Virtualization and cloud computing made simple. IBM System x servers and solutions.

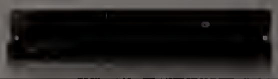
When moving to a virtualized or private cloud environment, taking the first step is usually challenging. Not anymore. IBM® System x® M4 Express® servers integrated with IBM virtualization and cloud solutions can simplify and speed deployment. Equipped with the latest Intel® Xeon® processors, IBM System x servers deliver ideal performance, scalability and memory capacity to handle virtualized workloads. IBM's recent delivery of the first-ever x86-virtualized TPC-C benchmark result with IBM's lowest-ever cost per transaction[1] goes to show that these solutions are efficient and cost-effective. So now you not only get all the advantages of a cloud or virtualized environment but also the benefits of simplicity and reduced costs. And you can always count on the expertise of IBM Business Partners to help you configure the systems to suit your business needs.

IBM System x3650 M4 Express

$2,299

OR $69/MONTH FOR 36 MONTHS[2]

PN: 7915-EGU



- Optimized for performance and low cost with new Intel processors
- Ideal platform for range of business applications including cloud, virtualization and web collaboration
- Outstanding reliability, availability and serviceability; easy to deploy and manage

IBM System x3550 M4 Express

$1,849

OR $55/MONTH FOR 36 MONTHS[2]

PN: 7914-EGU

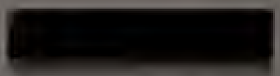
- Performance, flexibility and cost perfectly balanced in a compact form factor
- Smart platform with new Intel processors for range of business applications including cloud and virtualization
- Outstanding reliability, availability and serviceability; easy to deploy and manage

IBM Storwize® V3700

$8,799

OR $215/MONTH FOR 36 MONTHS[2]

PN: 2072-S2C



- 2U form factor capable of holding 24 x 2.5" drives (up to 120 drives with expansion units)
- Virtualization of internal storage and thin provisioning for improved storage utilization
- Optimized costs for mixed workloads by using IBM System Storage® Easy Tier®

Read the TBR white paper
See how IBM's approach to virtual desktop infrastructure delivers simplicity.
Visit **ibm.com/systems/simplifycloud**

Contact the IBM Concierge to help you connect to the right IBM Business Partner.
1 866-872-3902 (mention 102PF19A)

Scan with your smartphone to learn more about IBM System x M4 Express servers.

---

[1] As of May 7, 2013. See http://www.tpc.org/1791

[2] Global Financing offerings are provided through IBM Credit LLC in the United States and other IBM subsidiaries and divisions worldwide to qualified commercial and government customers. Monthly lease payments provided are for planning purposes only and may vary based on your credit and other factors. Lease offer provided is based on an FMV lease of 36 monthly payments. Other restrictions may apply. Rates and offerings are subject to change, extension or withdrawal without notice and may not be available in all countries. Listed prices include Express Servers only. Operating system software and optional virtualization and cloud solutions available at an additional cost.

IBM hardware products are manufactured from new parts or new and serviceable used parts. Regardless, our warranty terms apply. For a copy of applicable product warranties, visit http://www.ibm.com/servers/support/machine_warranties. IBM makes no representation or warranty regarding third-party products or services. IBM, the IBM logo, ibm.com, Storwize, System x, Express, System Storage and Easy Tier are registered trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. For a current list of IBM trademarks, see www.ibm.com/legal/copytrade.shtml. Intel, the Intel logo, Xeon and Xeon Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and/or other countries. All prices and savings estimates are subject to change without notice, may vary according to configuration, are based upon IBM's estimated retail selling prices as of 8/29/2013 and may not include storage, hard drive, operating system or other features. Reseller prices and savings to end users may vary. Products are subject to availability. This document was developed for offerings in the United States. IBM may not offer the products, features or services discussed in this document in other countries. Contact your IBM representative or IBM Business Partner for the most current pricing in your geographic area. ©2013 IBM Corporation.